

Joint Pacific Alaska Range Complex



Environmental Impact Statement for the Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska

Volume I – Executive Summary, Chapters 1 through 10

Final

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Record of Decision
for the Modernization and Enhancement of Ranges, Airspace,
and Training Areas in the Joint Pacific Alaska Range Complex (JPARC) in Alaska

INTRODUCTION

As joint war fighting doctrine has developed since the end of the Cold War and after September 11, 2001, as new weapons systems and platforms come on-line, and as joint context training has evolved, the Joint Pacific Alaska Range Complex (JPARC), under its current configuration, can no longer fully meet the training and testing requirements for forces stationed in, and exercises occurring in and near, Alaska. The purpose of the JPARC proposed actions is to modernize and enhance JPARC in Alaska and to best support the military exercises in and near Alaska. JPARC modernizations and enhancements would enable realistic joint training and testing to support emerging technologies, respond to recent battlefield experiences, and train with tactics and new weapons systems to meet combat and national security needs.

Pursuant to guidance and philosophy found in DoD Directive 1322.18, *Military Training*, and in the Commander PACOM's Alaska Joint Training Program of Excellence, Alaskan Command (ALCOM), as the DoD's regional joint headquarters in Alaska, has coordinated with the Services to develop a strategy to identify joint training opportunities in Alaska, maximize the utilization of training resources, and improve joint context training at all levels. The *JPARC Modernization and Enhancement EIS* evaluated the potential environmental impacts for the reasonably foreseeable proposed projects associated with this strategy.

The *JPARC Master Plan* compiled all of the training and testing requirements for military units and DoD-sponsored exercises in the State of Alaska and provides a long-term 30-year strategy to coordinate and deconflict military range and airspace developments. Based on these requirements, the August 2011 *JPARC Master Plan* identified 21 distinct objectives for the modernization and enhancement of JPARC. The objectives were then developed into 19 independent actions, which fall into the categories of existing planning efforts, new actions, or potential future actions that require additional planning. These actions would fulfill capabilities needed by the multiple military units in the State of Alaska and the exercises they conduct but are in different stages of planning. The decision made in this ROD will be used to modify the existing Master Plan and will, consequently, provide updates in the continuum of the life of the JPARC.

The *JPARC Modernization and Enhancement EIS* considered and evaluated a total of 12 independent proposals. Six proposals were considered definitive as ripe for decision and are included in this ROD. The six definitive proposals that are the subject of this ROD include (1) Fox 3 Military Operating Area (MOA) Expansion and Paxon MOA Addition (Air Force), (2) Realistic Live Ordnance Delivery (Air Force), (3) Battle Area Complex (BAX) Restricted Area Addition (Army), (4) Expand Restricted Area R-2205, including the Digital Multi-Purpose Training Range (DMPTR) (Army), (5) Night Joint Training (Air Force), and (6) Unmanned Aerial Vehicle (UAV) Access (Army).

The other six proposals were considered in a programmatic manner and are not yet ripe for decision. The *JPARC Modernization and Enhancement EIS* addressed these six proposals programmatically and cumulatively so that the proposal proponents may continue to proceed with further planning, programming, design, or funding acquisition. The Army and Air Force

plan to conduct follow-on National Environmental Policy Act analysis and evaluation that would be tiered from that EIS in additional environmental impact documents. The six programmatic proposals included (1) Enhanced Ground Maneuver Space (Army), (2) Tanana Flats Training Area (TFTA) Roadway Access (Army), (3) Joint Air-Ground Integration Complex (JAGIC) (Army), (4) Intermediate Staging Bases (ISBs) (Army), (5) Missile Live-Fire for AIM-9 and AIM-120 (Air Force), and (6) Joint Precision Airdrop System Drop Zones (JPADS) (Air Force).

This Record of Decision (ROD) provides the decision by the Army and Air Force, regarding the six definitive proposals evaluated in the Environmental Impact Statement for the Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska (the JPARC Modernization and Enhancement EIS). This decision has been made in consideration of the information contained in the JPARC Modernization and Enhancement EIS, which was filed with the Environmental Protection Agency (EPA) and made available to the public by a Notice of Availability in the Congressional Federal Register on June 28, 2013 (Federal Register Vol. 78, No. 125, June 28, 2013, pg. 38975).

This ROD:

- States the decision by the Army (Pages 3 and 20) and Air Force (Pages 3-4 and 21)
- Identifies and discusses the relevant factors considered in reaching the decision, including technical considerations, public review and Tribal and agency input (Page 4-5)
- Identifies the definitive proposals and alternatives considered by the Army and Air Force in reaching their decision and specifies the alternative considered to be environmentally preferable for each definitive proposal (Pages 5-8)
- Identifies the mitigations adopted for each definitive proposal and states whether all reasonable and practicable means to avoid, minimize, or mitigate significant adverse impacts from the alternatives selected have been adopted (Pages 10-19)

DECISION

The Army selects:

Battle Area Complex (BAX) Restricted Area Addition – Alternative B (Preferred Alternative)
Alternative B was selected because the additional expansion encompasses both the BAX and Combined Arms Collective Training Facility (CACTF) military withdrawn lands under proposed restricted airspace, as opposed to Alternative A which only encompasses the BAX. Alternative B allows ground and air forces to work together enhancing joint use capabilities of the BAX and CACTF.

Restricted Area Expansion of R-2205, including the Digital Multi-Purpose Training Range (DMPTR) – Proposed Action (Preferred Alternative)

The Proposed Action was selected because the expansion best provides the Army with an area of sufficient size to encompass hazardous activities, an increase of more-realistic training, and better support joint training initiatives.

Unmanned Aerial Vehicle (UAV) Access – Alternative A (Preferred Alternative)

Alternative A was selected because Federal Aviation Administration's (FAA)-established restricted air space best meets the rapidly expanding UAV technologies and employment practices and allows the Army to practice employing UAVs during training events. Alternative B only establishes temporary Certificates of Authorization for each corridor.

The Air Force selects:

Fox 3 Military Operating Area (MOA) Expansion and New Paxon MOA - Alternative E (Preferred Alternative)

Alternative E was selected because it addresses public comments and FAA concerns by moving the southern boundary approximately 20 nautical miles (NM) to the north, avoiding potential impacts from the larger proposed MOA in Alternative A, yet still meeting the Air Force's needs. Alternative E also aligns the southern boundary of the MOA with the existing Fox 3 Air Traffic Control Assigned Airspace boundary.

Realistic Live Ordnance Delivery - Alternative A (Preferred Alternative)

Alternative A was selected because it meets long-range realistic live ordnance delivery training requirements for the Air Force while avoiding potential aviation impacts from the larger restricted area explored in Alternative B.

Night Joint Training - Alternative B (Preferred Alternative)

Alternative B was selected because it provides the Air Force with optimum capability to conduct Major Flying Exercises (MFEs) during hours of darkness in March and October, and provides optimum flexibility by allowing routine night flying training operations during all months of the year. Alternative A limits the extended JPARC MOA operating hours to MFEs only during March and October. Undertaking night flying operations, during both MFEs and routine training, is a critical Air Force training requirement.

BACKGROUND

The Army and Air Force organizations in Alaska responsible for the preparation of the Environmental Impact Statement for the Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska (*JPARC Modernization and Enhancement EIS*) include U.S. Army Alaska (USARAK) and the 11th Air Force (11th AF), as coordinated by the Alaskan Command (ALCOM). ALCOM is a regional military command of the United States Armed Forces focusing on the State of Alaska and is a subunified command of the U.S. Pacific Command (USPACOM).

The Department of Defense (DoD) Services include the U.S. Army, Air Force, Navy, Marine Corps, and Department of Homeland Security's U.S. Coast Guard. JPARC provides a realistic training environment and allows the Services to train for full-spectrum engagements, ranging from individual skills to complex, and large-scale joint engagements. Each year, thousands of people from the Services; Federal, State and local agencies; allied nations; and nongovernmental organizations receive training in the JPARC.

JPARC consists of all air, land, and sea training capacity and assets in Alaska. JPARC is composed of the military land ranges, maritime training areas, and airspace that provide critical training and testing environment to the DoD Service units based in Alaska. Specifically, today, the JPARC is composed of approximately:

- 65,000 square miles of available airspace
- 2,490 square miles of land space with 1.5 million acres of maneuver land
- 42,000 square nautical miles (NM²) of sea and air space in the Gulf of Alaska (GOA)

This includes, but is not limited to, the ranges, training areas, restricted areas, and Military Operations Areas (MOAs) associated with Fort Greely; Fort Wainwright; Joint Base Elmendorf-Richardson (JBER); Eielson Air Force Base (EAFB); Donnelly, Tanana Flats, Yukon, Gerstle

River, and Black Rapids Training Areas; and the U.S. Navy's Temporary Maritime Activities Area (TMAA) located in the GOA.

JPARC supports local training for USARAK; the 3rd Wing, 673rd Air Base Wing, and 354th Fighter Wing of the Air Force; the Navy's Pacific Fleet; the Alaska Army and Air National Guards; the Coast Guard; and the Marine Reserves. It is home to Joint Chiefs of Staff exercises NORTHERN EDGE and RED FLAG-Alaska, two large-scale and critically important tactical-level field training exercises. JPARC also supports numerous Air Force units in their routine qualification training in conjunction with their deployment to Alaska to participate in RED FLAG-Alaska, the Army's Cold Regions Test Center and the U.S. Missile Defense Agency, along with other homeland defense missions and exercises such as Joint Chiefs of Staff exercise ARCTIC EDGE.

DESCRIPTION OF DEFINITIVE PROPOSALS AND ALTERNATIVES CONSIDERED

The actions proposed to achieve the vision for Joint Pacific Alaska Range Complex (JPARC) are briefly described below and more thoroughly described in Chapter 2.0 of the Final Environmental Impact Statement (EIS). These actions are independent of each other and have standalone value for improving Army and Air Force training exercises.

Fox 3 Military Operating Area (MOA) Expansion and New Paxon MOA: The Air Force proposed to expand the existing Fox 3 MOA and establish a new, adjacent Paxon MOA to provide the vertical and horizontal airspace structure needed to better accommodate low-altitude threat and multi-axis aircraft training mission requirements during JPARC training exercises. The Air Force considered the following alternatives, as well as a No Action Alternative: **Alternative A** included the proposed expanded Fox 3 MOA and the proposed new Paxon MOA with both the high- and low-altitude MOAs. The Fox 3 MOA would be stratified into low (500 feet above ground level [AGL] up to but not including 5,000 feet AGL) and high (5,000 feet AGL up to but not including FL180) sectors, while the Paxon MOA would be stratified into low (500 feet AGL up to but not including 14,000 feet above mean sea level [MSL]) and high (14,000 feet MSL up to but not including FL180) sectors. The Paxon Low MOA is to be activated only for Major Flying Exercises (MFEs); these are limited to 60 days in a calendar year per the '97 Record of Decision (ROD) on the 1995 Alaska MOA EIS. **Alternative E (Preferred Alternative)** is the same as Alternative A, except the airspace structure for the Fox 3 MOA expansion coverage would be approximately 1.164 million acres (1,820 square miles) smaller in size, with the southern boundary moved approximately 20 nautical miles (NM) to the north.

Realistic Live Ordnance Delivery (RLOD): As the range and lethality of modern Air Force fighter aircraft and ordnance increase, so do the amounts of training area, training time, and airspace required to safely and effectively train with these weapons. The current ranges and restricted airspace of JPARC are not capable of supporting realistic training with modern and emerging aircraft and ordnance. The Air Force proposed to establish a realistic air and ground

training environment that would accommodate live ordnance delivery of modern and emerging fighter aircraft by considering the following alternatives, as well as a No Action Alternative: **Alternative A (Preferred Alternative)** proposed the use of existing targets in the Oklahoma Impact Area within Restricted Area 2202 (R-2202), with the expansion of this restricted airspace to the west to encompass the airspace and underlying lands for both live and inert ordnance delivery. **Alternative B** proposed that live ordnance delivery be conducted on existing targets in the Oklahoma Impact Area and that inert ordnance delivery be conducted in the Blair Lakes Impact Area, requiring a proposed new restricted area linking R-2211 and R-2202. This alternative proposed that the existing R-2202 be expanded to the west to encompass the weapons footprints, altitudes, and safety zones up to the unlimited ceiling of R-2202 D. The altitudes needed for RLOD would depend on the type of ordnance used and aircraft types and profiles delivering this ordnance. This proposed expansion would provide the optimum additional restricted airspace required to contain any hazardous conditions that may occur with the safety footprints for ordnance use within the impact areas. **Both Alternatives A and B** proposed temporary impact areas and targets for inert ordnance delivery within Donnelly Training Area (DTA). When only these inert targets are active, restricted areas outside of military lands would not be required and ground access restrictions would be limited to within the existing R-2202 restricted area in DTA.

Battle Area Complex (BAX) Restricted Area Addition: Use of the existing BAX Controlled Firing Area (CFA) is currently very constrained in terms of the types, levels, and intensity of training that can be undertaken. To fully support more realistic Army and joint training at the BAX, the action alternative proposed by the Army required the addition of new restricted area of sufficient size to provide the protective airspace required for the hazardous air and ground activities and weapons safety footprints to fully accommodate training. The two Army action alternatives proposed to establish a new restricted area over the BAX area within DTA-East, where 100 percent of the land is currently withdrawn by the military. Utilization of the expanded restricted airspace would be between about 106 to 242 days annually. The airspace could be active 12 hours per day, 7:00 a.m. to 7:00 p.m. local time, Monday through Friday, and other times as required and stipulated by Notice to Airmen (NOTAM).

For each alternative, the airspace is proposed to be of sufficient area to encompass hazardous activities and weapons footprints for those types of munitions and ordnance to be used in this area. The Army considered the following alternatives, as well as a No Action Alternative: **Alternative A** proposed to establish restricted area over the BAX and the Combined Arms Collective Training Facility (CACTF) and to subdivide the restricted airspace into two sectors: R-XXXXA (north) and R-XXXXB (south). The new restricted airspace would be stratified into three altitude levels as follows: surface up to 5,999 feet MSL; 6,000 feet MSL up to 17,999 feet MSL; and 18,000 feet MSL up to FL220. The majority of BAX activities (approximately 60 percent of training) would occur in the lower-altitude layer (below 6,000 feet MSL). **Alternative B (Preferred Alternative)** proposed to establish a larger expanded restricted area over the BAX, the CACTF, and the CACTF CFA and to subdivide the restricted area into three sectors: R-XXXXA (north), R-XXXXB (center), and R-XXXXC (south) with the use of this airspace being the same as Alternative A. This proposed restricted area would be stratified into

three altitude levels as follows: surface up to 5,999 feet MSL; 6,000 feet MSL up to 14,999 feet MSL; and 15,000 feet MSL up to FL220.

Restricted Area Expansion of R-2205, including the Digital Multi-Purpose Training Range (DMPTR): This Army Proposed Action proposed to expand R-2205 to include the DMPTR area within the Yukon Training Area (YTA), as well as the airspace currently designated as the Combined Arms Live-Fire Exercise north and south CFAs that overlie the YTA and are used for small arms firing, artillery, ground-launched antitank guided missiles, and mortars (**Preferred Alternative**). The DMPTR is currently very constrained in terms of the types, levels, and intensity of training that can be undertaken. Restricted area is needed to be of sufficient size over these areas to provide the protective airspace required for the hazardous air and ground activities and weapons safety footprints to fully accommodate training. The restricted area would extend from the surface up to FL310, to support live-fire training (covering an area of 251,000 acres [392 square miles]). Currently the Yukon MOA overlies YTA. The restricted area would provide protective areas for the hazardous activities and weapons surface danger zones of sufficient size for the types of ordnance used within the area. The proposed action would subdivide the new restricted area into segmented blocks to integrate Unmanned Aerial Vehicles (UAVs) into training. The military would only activate those subdivisions and altitudes needed to support individual UAV and other mission requirements, mostly at lower altitudes during short periods for UAV transit between segments. Utilization of the expanded restricted airspace is between about 200 to 300 days annually. The airspace could be active 12 hours per day, 7:00 a.m. to 7:00 p.m. local time, Monday through Friday, and other times as required and stipulated by NOTAM. This proposal has potential effects on Eielson AFB air traffic operations and other air traffic in the region. Means for managing any new restricted airspace (R-2205) and associated air traffic requires processes to be outlined in procedures and agreements to permit use of the airspace.

Night Joint Training: Enemy forces frequently use the cover of darkness to hide their activity. Advanced night vision capabilities and equipment have been developed to support Air Force combat operations. Undertaking night flying operations, during both major joint flying exercises and routine training, is a critical training requirement. While night vision equipment capabilities have advanced, the available time to conduct such training has been reduced for the Air Force in Alaska due to the 2005 nationwide extension of daylight saving time into March and November. Currently, the JPARC MOAs close at 10:00 p.m., and due to the extension of daylight savings time, it is not dark enough prior to 10:00 p.m. during the months of October and March to conduct a night MFE. This Air Force proposal would extend the hours JPARC MOAs are available for use from 10 p.m. to midnight, allowing a two-week RED FLAG-Alaska with night joint training to occur in March or October.

During the RED FLAG-Alaska night portion, the live and inert munitions currently dropped during the evening training period would be dropped after 10:00 p.m. Routine training (Alternative B) could include night bombing training outside of the MFE construct. This is not a change in the numbers of munitions dropped, just a change in time of day. These munitions would typically be released in the existing Stuart Creek Impact Area within R-2205 in YTA and

the existing Oklahoma Impact Area in R-2202 in DTA-West. These areas are currently used by the Army for late-night munitions training.

The Air Force considered the following alternatives, as well as a No Action Alternative: **Alternative A** proposed to extend the JPARC MOAs operating hours to allow Air Force tactical flight operations until midnight and landing by 1:00 a.m., local time, during March and October for MFEs in Alaska. This would allow night training during these months from a minimum of 1.5 hours to a maximum of 2.5 hours for each exercise. **Alternative B (Preferred Alternative)** proposed to extend the JPARC MOAs operating hours to allow Air Force tactical flight operations until midnight and landing by 1:00 a.m., local time, during all months of the year for MFEs and also for all Air Force routine training purposes.

Unmanned Aerial Vehicle (UAV) Access: UAVs have become critical aircraft in the conduct of reconnaissance, surveillance, and other activities; UAV access throughout the JPARC ranges and airspace is critical to enhance Army and Air Force training and exercises at JPARC. The following UAV corridors have been developed as individual, standalone proposed Army action alternatives: Eielson AFB to R-2211; Eielson AFB to R-2205; Allen Army Airfield to R-2202; R-2202 to R-2211; R-2205 to R-2202; Fort Wainwright to R-2211; and Fort Wainwright to R-2205. The Army considered the following alternatives, as well as a No Action Alternative: **Alternative A (Preferred Alternative)** would establish new restricted or other suitable airspace as determined by the FAA for each UAV corridor identified above; **Alternative B** would establish defined airspace having special operating provisions via a Certificate of Authorization for each UAV corridor identified above.

ENVIRONMENTALLY PREFERABLE ALTERNATIVES

For each proposed action, the environmentally preferable alternative is considered to be the No Action Alternative. The No Action alternative constitutes the baseline conditions at each alternative location and would not substantially change existing environmental impacts.

PUBLIC INVOLVEMENT

The public involvement accomplished by the Army and Air Force is discussed in the Final Environmental Impact Statement (EIS) (Public Scoping Summary: Volume 2 Appendix A and Public Hearing Summary: Volume 3 Appendix M). Public notices and meetings were accomplished as follows:

Notice of Intent (NOI), Federal Register, Vol. 75, No. 235, page 76444-46, December 8, 2010

Scoping period – December 8, 2010 to March 4, 2011

Scoping Meetings:

Anchorage, AK January 13, 2011
Glennallen, AK January 18, 2011
Delta Junction, AK January 19, 2011
Fairbanks, AK January 20, 2011
Healy, AK January 24, 2011
Talkeetna, AK January 25, 2011
Wasilla, AK January 26, 2011

Notice of Availability (NOA) of Draft EIS, Federal Register, Vol. 77, No. 62, page 19282, March 30, 2012

Public Comment Period – March 30, 2012 to July 9, 2012

Public Hearings:

Anchorage, AK May 11, 2012
Palmer, AK May 14, 2012
Glennallen, AK May 15-16, 2012
Paxson, AK May 17, 2012
Delta Junction, AK May 18, 2012
Fairbanks, AK May 19, 2012
Healy, AK May 21, 2012
Talkeetna, AK May 22, 2012
Wasilla, AK May 23, 2012

NOA of Final EIS, Federal Register, Vol. 78, No. 125, page 38975, June 28, 2013

CONSULTATION WITH ALASKA NATIVE TRIBES

In compliance with the Department of Defense (DoD) American Indian and Alaska Native Policy and DoD Instruction 4710.02 “Interaction with Federally Recognized Tribes,” Government-to-Government (G2G) consultations with Federally Recognized Tribes occurred throughout the 2010-2013 period. Formal G2G consultation meetings were held on February 28, 2011 and November 27, 2012 with Tribal leaders and Alaska’s highest ranking military commanders. In addition, information was shared and consultations held with Alaska Native Claims Settlement Act (ANCSA) Corporations.

MITIGATIONS AND MANAGEMENT ACTIONS

Tables ES-2 - ES-7 of Volume 1 (pages 14 - 67) summarize the impacts for each definitive proposal by resource or impact area and the mitigation measures developed by the Army and Air Force to avoid, reduce, or provide management actions to mitigate significant adverse impacts.

For those resources where potential impacts have not been mitigated by avoidance (i.e. through project design), additional planned mitigations and management actions are summarized below:

ARMY

BATTLE AREA COMPLEX (BAX) RESTRICTED AREA

Airspace

Pending the Federal Aviation Administration's (FAA) study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals.

Biological Resources

Maintain consultation with U.S. Fish and Wildlife Service (USFWS) with regard to compliance with Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act. As required, conduct bald and golden eagle nest surveys in other areas where airspace modification would occur over previously unsurveyed areas. Coordinate the results with USFWS.

Continue to monitor effects of military training including overflights on select wildlife species (especially herd animals, waterfowl, and raptors) and fisheries during critical seasons such as breeding, young-rearing, and migration. Use knowledge to develop and implement strategies to minimize disturbance to priority wildlife in existing and new Special Use Airspace (SUA) and restricted airspace. This would help natural resources and range managers to coordinate training schedules that minimize impacts on wildlife populations.

Continue pilot and soldier education for awareness of sensitive wildlife species habitats and seasonal behaviors utilizing Geographic Information Systems (GIS) mapping and

discuss procedures to reduce disturbances and to increase safety by reducing potential for aircraft strikes.

Continue effort to conduct a detailed study to assess the impacts and effects of noise on wildlife, particularly key species such as caribou and bison, during critical life cycle seasons. Use information to include protection requirements within a noise management plan.

Cultural Resources

Mitigations for impacts to cultural resources are established through National Historic Preservation Act (NHPA) Section 106 consultation pursuant to 36 CFR 800. In compliance with Section 106 of the NHPA the Army has completed consultation with the Alaska State Historic Preservation Officer (SHPO) and complied with all requirements for consultation with potentially affected Alaska Native Tribes, Alaska Native Claims Settlement Act (ANCSA) corporations, and Tribal government entities to identify historic properties that may be affected, including traditional cultural properties (TCPs), and develop management actions and mitigation measures to resolve any adverse effects, if required. It has been determined that significant adverse impacts to cultural resources and Alaska Native Tribes, ANSCA corporations, and Tribal government entities would not occur by the implementation of the BAX Restricted Area proposal.

Mitigation measures include the amendment of the existing BAX Surface Danger Zone (SDZ) Programmatic Agreement to include the known and as yet undiscovered archaeological sites in the expanded BAX SDZ footprint. Specific Programmatic Agreement requirements are to survey new areas of the amended BAX SDZ within a period of five years from the amended agreement (9/9/12); add any sites that are discovered to the BAX SDZ monitoring plan; produce an annual report to the Alaska SHPO; update the Archaeological Resource Protection Act tri-fold handout and develop a placard describing cultural resources on the BAX SDZ that will be presented in the form of, at a minimum, one poster displayed at Range Control, and one interpretive panel placard to be displayed at an information kiosk located at the BAX range; and develop a cultural resource awareness PowerPoint presentation to be given to Soldiers and contractors to increase knowledge of cultural resource concerns and responsible actions, and knowledge of Alaskan Native communities. All of the above mentioned requirements are either completed or in progress. Annual monitoring of archaeological sites within the BAX SDZ began in August of 2009 and will continue for 10 years from this date.

In accordance with AR 200-1, all NHPA Section 106 consultation has been completed. In the event that previously unrecorded or unevaluated cultural resources are encountered, the Army would manage these resources in accordance with the NHPA and other Federal and State laws, Air Force, and Department of Defense (DoD) regulations and instructions, and DoD American Indian and Alaska Native Policy.

Hazardous Materials/Biological Resources/Water Resources

The Army may augment the effort for their existing program to identify possible munitions contamination at training areas on Donnelly Training Area (DTA)-East. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams.

Land Use – Access

The Army will update information and maps available to the public on the U.S. Army Recreation Tracking System website to identify changes in public access restrictions for the expanded Army training activities within U.S. Army Garrison Fort Wainwright (USAG-FWA) training areas.

Land Use/Biological Resources

The military will maintain an open dialogue with Alaska Department of Natural Resources (ADNR), Bureau of Land Management (BLM), Alaska Department of Fish and Game (ADFG) and USFWS to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the Record of Decision (ROD) for this Environmental Impact Statement (EIS).

Land Use/Safety – Ground

The Army will expand enforcement to control trespass in DTA-East for the expanded operations.

Safety – Flight Safety

Maintain respective bird awareness programs to address potential bird and wildlife hazards that may exist.

Safety – Ground

Continue fire management mitigations in accordance with current Army and USARAK regulations on the BAX.

Socioeconomics/Airspace

Pursue manning and funding for any enhancements required to expand situational awareness for air traffic in and around training areas for general and military aviation. Complete an internal study to identify coverage gaps in new SUAs and restricted airspace. One possible alternative is the establishment of a U.S. Army Airspace Information Center.

Subsistence

Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA- West, DTA- East, Yukon Training Area (YTA), and Tanana Flats Training Area (TFTA).

EXPAND RESTRICTED AREA R-2005, INCLUDING THE DIGITAL MULTI-PURPOSE TRAINING RANGE (DMPTR)

Airspace

Pending the FAA's study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals.

Biological Resources

Continue to monitor effects of military training including overflights on select wildlife species (especially herd animals, waterfowl, and raptors) and fisheries during critical seasons such as breeding, young-rearing, and migration. Use knowledge to develop and implement strategies to minimize disturbance to priority wildlife in existing and new SUAs and restricted airspace. This would help natural resources and range managers to coordinate training schedules that minimize impacts on wildlife populations.

Continue pilot and soldier education awareness of sensitive wildlife species habitats and seasonal behaviors utilizing GIS mapping and discuss procedures to reduce disturbances and to increase safety by reducing potential for aircraft strikes.

Continue effort to conduct a detailed study to assess the impacts and effects of noise on wildlife, particularly key species such as caribou and bison, during critical life cycle seasons. Use information to include protection requirements within a noise management plan.

Cultural Resources

Mitigations for impacts to cultural resources are established through NHPA Section 106 consultation pursuant to 36 CFR 800. In compliance with Section 106 of the NHPA the Army has consulted with the Alaska SHPO and complied with all consultation requirements with potentially affected Alaska Native Tribes, ANCSA corporations, and Tribal government entities to identify historic properties that may be affected, including TCPs, and anticipates a determination of no historic properties adversely affected. Therefore, mitigations would not be applicable for this proposal.

In accordance with AR 200-1, all NHPA Section 106 consultation has been completed. In the event that previously unrecorded or unevaluated cultural resources are encountered, the Army would manage these resources in accordance with the NHPA and other Federal and state laws, Air Force, and DoD regulations and instructions, and DoD American Indian and Alaska Native Policy.

Hazardous Materials/Biological Resources

The Army may augment the effort for their existing program to identify possible munitions contamination at impact areas on YTA. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams.

Land Use/Biological Resources

The military will maintain an open dialogue with ADNR, BLM, ADFG, and USFWS to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the ROD for this EIS.

Land Use/Safety – Ground

The Army would expand enforcement to control trespass in YTA for the expanded R-2205 activities.

Safety – Flight Safety

Continue efforts to comply with the respective Service formal flight safety programs, outlined in directives/regulations with supplements, that dictate those aircrew responsibilities and practices aimed at operating all manned and unmanned aircraft safely in existing modified and new SUAs.

Subsistence

Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA.

UNMANNED AERIAL VEHICLE (UAV) ACCESS

Airspace

Pending the FAA's study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals.

Safety

Conduct Sandhill Crane surveys during spring and fall migration periods.

Safety – Flight Safety

Continue efforts to comply with the respective Service formal flight safety programs, outlined in directives/regulations with supplements, that dictate those aircrew responsibilities and practices aimed at operating all manned and unmanned aircraft safely in existing modified and new SUAs.

Subsistence

Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-

FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA.

AIR FORCE

FOX 3 MILITARY OPERATING AREA (MOA) EXPANSION AND NEW PAXON MOA

Airspace Management/Safety – Flight/Land Use – Access

Continue Special Use Airspace Information Service (SUAIS) in all areas where radio coverage exists; this includes a majority of the area beneath the proposed Fox 3 and Paxon MOAs. The (SUAIS) Letter of Agreement (LOA) with the FAA will be updated to include current radio sites and any new MOAs to be covered by the system.

The effectiveness of this mitigation in maintaining a safe, usable airspace can be seen in today's northern MOAs, which have minimum altitudes even lower than proposed here. The Air Force safely shares large expanses of airspace with civilian aviation utilizing the communication network known as SUAIS. Proposed new, low MOAs already have large areas of SUAIS coverage that would enable safe, simultaneous use of these new airspaces by civil and military aircraft.

Biological Resources

Limit minimum altitude to 1,000 feet above ground level (AGL) in the new Fox 3 and Paxon MOAs from 15 March to 30 September (nesting season) to comply with the Bald and Golden Eagle Protection Act. Subject to available funding, the AF may coordinate with the USFWS to establish habitat models and/or conduct bald and golden eagle nest surveys to establish low flying (500 feet AGL) areas outside of eagle habitat during the nesting season (15 March to 30 September).

Modify existing LOA with ADFG to maintain avoidance areas over caribou and Dall sheep populations under the new MOAs during critical lifecycle periods. Coordination with wildlife agencies will continue to determine specifics including seasons and minimum overflight altitudes; location of herds is monitored/reported by ADFG.

Airspace Management/Safety – Flight/Biological Resources/Land Use – Management, Access, Recreation/Socioeconomics/Subsistence

Extend the VFR flight corridor over the Richardson highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.)

As an extra safety measure, designated VFR corridors are intended to be free of high speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon Low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.

Biological Resources/Land Use – Management, Recreation

For the period 15 May to 30 September, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-nautical mile buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake).

Land Use – Management, Recreation/Socioeconomics

Comply with flight avoidance areas established by the 11th Air Force Airspace and Range Team and listed in the 11th AF Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th Air Force Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist).

REALISTIC LIVE ORDNANCE DELIVERY (RLOD)

Land Use – Management, Access/Socioeconomics

Comply with ADNR comments to avoid leasehold properties in the north and south corners of the proposed restricted area by adjusting the borders of the Alternative A airspace.

Safety – Ground/Land Use – Management

Air Force will provide support to ADNR throughout the Special Use Designation (SUD) process. The Air Force will develop a Concept of Operation and an Access and Safety

Plan for the exclusive use of state land to support RLOD. The SUD will identify areas and dates of closure and will have to indicate which activities are affected. The Access Plan will provide the maximum public use to the ground evacuation areas, closing such areas for the minimum period of time necessary to conduct such operations. The Access Plan (updated annually) will identify areas and dates of closure and will indicate which activities are affected. It will describe roles and responsibilities for securing the area, ensuring it is evacuated, publishing and posting closure notices, signs and other media to advertise and alert public of the hazards, times, and locations.

Physical Resources/Water Resources

All applicable conservation, monitoring, and management procedures currently followed by USAG-FWA in the management of R-2202 will be applicable to the Proposed Action, including measures for the protection of soils and permafrost, including but not limited to, the Fort Wainwright Integrated Natural Resource Management Plan and Storm Water Pollution Prevention Plan and the monitoring guidelines of the Integrated Training Area Management Sustainable Range Awareness.

NIGHT JOINT TRAINING

Airspace Management/Safety – Flight/Biological Resources/Land Use – Management, Access, Recreation/Socioeconomics/Subsistence

Extend the VFR flight corridor over the Richardson highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.)

As an extra safety measure, designated VFR corridors are intended to be free of high speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon Low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.

Biological Resources/Land Use – Management

For the period of May 15 to September 30, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-nautical mile buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake).

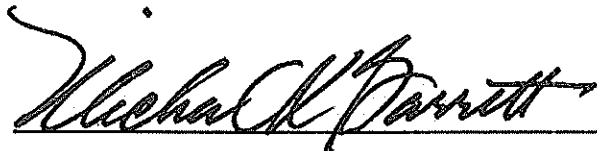
Land Use – Management, Recreation/Socioeconomics

Comply with flight avoidance areas established by the 11th Air Force Airspace and Range Team and listed in the 11th AF Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th Air Force Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist).

ARMY DECISION

After consideration of relevant operational, environmental, economic and technical factors discussed in the Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska Final Environmental Impact Statement, comments from the public, inputs from regulatory agencies, and other relevant factors, the Army has decided to implement Battle Area Complex Restricted Area Addition Alternative B (Preferred Alternative), Restricted Area Expansion of R-2205 including the Digital Multi-Purpose Training Range Proposed Action (Preferred Alternative), and Unmanned Aerial Vehicle Access Alternative A (Preferred Alternative).

This decision takes into account the direct, indirect and cumulative impacts from the alternatives. The Preferred Alternatives include all practicable means to avoid, minimize or mitigate environmental harm. Although mitigation measures and management actions are specified as part of this decision, particular mitigation measures and management actions could be modified by a subsequent decision after reexamination and reevaluation in any future environmental impact analyses of proposed Federal actions, including the programmatic actions identified above.



Major General Michael X. Garrett
Commanding General, US Army Alaska

7/30/2013
Date

AIR FORCE DECISION

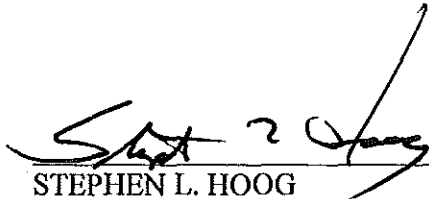
After consideration of relevant operational, environmental, economic and technical factors discussed in the Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska Final Environmental Impact Statement, comments from the public, inputs from regulatory agencies, and other relevant factors, the Air Force has decided to implement Fox 3 Military Operating Area (MOA) Expansion and New Paxon MOA Alternative E (Preferred Alternative), Realistic Live Ordnance Delivery (Alternative A), and Night Joint Training Alternative B (Preferred Alternative).

This decision takes into account the direct, indirect and cumulative impacts from the alternatives. The Preferred Alternatives include all practicable means to avoid, minimize or mitigate environmental harm. Although mitigation measures and management actions are specified as part of this decision, particular mitigation measures and management actions could be modified by a subsequent decision after reexamination and reevaluation in any future environmental impact analyses of proposed Federal actions, including the programmatic actions identified above.

During the 30-day waiting period after the Notice of Availability was published for the Final EIS, additional comments from the local community and other government agencies were received. These comments have been considered in this decision making process. As part of that consideration, the Air Force will meet with ADFG to discuss appropriate modifications to the existing LOA and updates to the 11th AF Airspace Handbook.



GERALD F. PEASE, JR.
Deputy Assistant Secretary of the
Air Force (Environmental, Safety,
& Occupational Health)



STEPHEN L. HOOG
Lieutenant General, USAF
Commander, Eleventh Air Force

6 Aug 2013
Date

6 Aug 2013
Date

How to Use This Document

Our goal is to provide a reader-friendly document. The organization of this Final Environmental Impact Statement (Final EIS) is shown below.

VOLUME I

Table of Contents, List of Figures, List of Tables, List of Acronyms, and Executive Summary	
Chapter 1 Purpose and Need for Joint Pacific Alaska Range Complex (JPARC) Proposed Actions: Explains the reasons for the proposed enhancements and modernizations and the screening criteria used to select proposals from the <i>JPARC Master Plan</i> for this EIS. Also described is the Environmental Impact Analysis Process, the consultation and public involvement processes, a table of where scoping comments are addressed, and a comparative analysis of the anticipated impacts of the proposed actions and alternatives.	
Chapter 2 Description of Proposed Action and Alternatives: An overview of the JPARC EIS definitive and programmatic proposed actions and alternatives.	
Chapter 3 Affected Environment and Environmental Consequences: Describes the environmental resources and areas that could potentially be affected by each proposed action, analysis methodology and potential impacts.	
<ul style="list-style-type: none"> • Airspace Management and Use • Noise • Safety • Air Quality • Physical Resources • Water Resources • Hazardous Materials and Waste • Biological Resources • Cultural Resources • Land Use • Infrastructure and Transportation • Socioeconomics • Subsistence • Environmental Justice 	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Fox 3 MOA Expansion and New Paxon MOA</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Realistic Live Ordnance Delivery</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Battle Area Complex (BAX) Restricted Area</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Expand Restricted Area R-2205, including the Digital Multi-Purpose Training Range (DMPTR)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Night Joint Training</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Unmanned Aerial Vehicle (UAV) Access</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Enhanced Ground Maneuver Space</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Tanana Flats Training Area (TFTA) Roadway Access</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Joint Air-Ground Integration Complex (JAGIC)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Intermediate Staging Bases (ISBs)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Missile Live Fire for AIM-9 and AIM-120 in the Gulf and Alaska</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Joint Precision Airdrop System (JPADS) Drop Zones</div>
Chapter 4 Cumulative Impacts and Secondary Effects: Summarizes the aggregated effects of multiple JPARC proposed actions, as well as the cumulative effects associated with other past, present, and reasonably foreseeable military and civilian actions.	
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Appendix C Conflict of Interest Statements: Contains disclosure statements from consulting firms supporting this EIS, stating financial or other interests that might cause a conflict of interest.	
Appendices D-J: Technical appendices that include reports and information that support the EIS analyses.	Appendix K Mitigations: A discussion of existing and proposed measures to minimize impacts.
Appendix L Copies of Agency and Government Correspondence: Copies of letters exchanged with government agencies, including consultation, coordination, and cooperating agency correspondence	

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Appendix M Draft EIS Review Public Process and Public Hearing Summary: Draft EIS and public hearing notification, informational, and summary materials.
Appendix N Draft EIS Comments and Responses: Copies of Draft EIS public comments and hearing transcripts, plus responses to substantive comments.

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List of Acronyms
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LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS

2,4-DNT	2,4 dinitrotoulene	ANG	Air National Guard
11th AF	11th Air Force	ANILCA	Alaska National Interest Lands Conservation Act
354 FW	354th Fighter Wing	AOHA	Alaska Office of History and Archaeology
AAC	Alaska Administrative Code	APEX	Alaska Predator Ecosystem Experiment
AADT	annual average daily traffic	AR	Army Regulation
AAF	Army Airfield	ARTCC	Air Route Traffic Control Center
AAR	after-action review	ASCG Inc.	ASCG Incorporated of Alaska
AAW	Anti-Air Warfare	ATC	Air Traffic Control
ABCT	Airborne Brigade Combat Team	ATCAA	Air Traffic Control Assigned Airspace
ACMAC	Alaska Civil/Military Aviation Council	BASH	bird/wildlife-aircraft strike hazard
ACMI	air combat maneuvering instrumentation	BAX	Battle Area Complex
ACMP	Alaska Coastal Management Program	BIA	Bureau of Indian Affairs
ADEC	Alaska Department of Environmental Conservation	BLM	Bureau of Land Management
ADFG	Alaska Department of Fish and Game	BMP	best management practice
ADNR	Alaska Department of Natural Resources	BRTA	Black Rapids Training Area
ADOT&PF	Alaska Department of Transportation and Public Facilities	CAB	Combat Aviation Brigade
AFB	Air Force Base	CACTF	Combined Arms Collective Training Facility
AFI	Air Force Instruction	cal	caliber
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection and Health	CALFEX	Combined Arms Live-Fire Exercises
AGL	above ground level	CAS	Close Air Support
AGM	air-to-ground missile	CDNL	C-weighted day-night average sound level
AHERA	Asbestos Hazard Emergency Response Act	CDP	census-designated place
AIRFA	American Indian Religious Freedom Act	CEQ	Council on Environmental Quality
AK	Alaska	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
ALCOM	Alaskan Command	CFA	Controlled Firing Area
AMHS	Alaska Marine Highway System	CFR	Code of Federal Regulations
ANCSA	Alaska Native Claims Settlement Act	CH ₄	Methane
		CHA	Critical Habitat Area

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CO	carbon monoxide	EA	environmental assessment
CO ₂ e	carbon dioxide equivalent	EB	Engineer Brigade
COA	Certificate of Authorization	EEZ	Exclusive Economic Zone
COMSUBPAC	Commander Submarine Force, U.S. Pacific Fleet 2	EFH	Essential Fish Habitat
CONOPS	Concept of Operations	EGMS	Enhanced Access to Ground Maneuver Space
CONUS	contiguous United States	EIAP	environmental impact analysis process
Councils	Fishery Management Councils	EIS	environmental impact statement
CRMP	Cultural Resources Management Plan	EISA	Energy Independence and Security Act
CRTC	Cold Regions Test Center	EN BDE	Engineer Brigade
CSP	Contaminated Sites Program	EO	Executive Order
CUA	Controlled Use Area	EPA	U.S. Environmental Protection Agency
CWA	Clean Water Act	EPCRA	Emergency Planning and Community Right-to-Know Act
dB	decibel	ERC	Eielson Range Control
dB PK 15(met)	single-event peak level exceeded by 15 percent of events	ESA	Endangered Species Act
DCED	Department of Commerce and Economic Development	ESU	Evolutionary Significant Unit
DERP	Defense Environmental Restoration Program	ETAP	Eastern Tanana Area Plan
DJMA	Delta Junction Management Area	FAA	Federal Aviation Administration
DMPTR	Digital Multi-Purpose Training Range	FAR	Federal Aviation Regulation
DNL	day-night average sound level	FCC	Federal Communications Commission
DoD	U.S. Department of Defense	FHWA	Federal Highway Administration
DODIC	U.S. Department of Defense Identification Code	FIA	forest inventory and analysis
DOI	U.S. Department of the Interior	<i>Final Alaska MOA EIS</i>	Final Environmental Impact Statement, Alaska Military Operations Areas
DOPAA	Description of Proposed Action and Alternatives	FL	flight level
DOT/AAHSTO	Department of Transportation/American Association of State Highway and Transportation Officials	FNSB	Fairbanks North Star Borough
DPS	Distinct Population Segment	FOF	Force-on-Force
DTA	Donnelly Training Area	FONSI	Finding of No Significant Impact
DZ	Drop Zone	FOT	Force-on-Target
		Fox 3/Paxon MOA	Fox 3 MOA Expansion and New Paxon MOA
		FRTR	Full Range Training Round

List of Acronyms, Abbreviations, and Symbols

FSO	Full-Spectrum Operations	IRP	Installation Restoration Program (DoD)
FSS	Flight Service Station	ISB	Intermediate Staging Base
FTX	field training exercises	ISR	Intelligence Surveillance Reconnaissance
GAP	Gulf APEX Predator-Prey Project	ITAM	Integrated Training Area Management
GBU	Guided Bomb Unit	JAGIC	Joint Air–Ground Integration Complex
GHG	greenhouse gas	JBER	Joint Base Elmendorf-Richardson; combination of Elmendorf AFB and Fort Richardson
GIS	geographic information system	JCALF	Joint Combined Arms Live Fire
GMU	Game Management Unit	JDAM	Joint Direct Attack Munition
GOA	Gulf of Alaska	JIIM	Joint Interagency, Intergovernmental, and Multinational
<i>GOA EIS/OEIS</i>	<i>The Gulf of Alaska Navy Training Activities Final Environmental Impact Statement/Overseas Environmental Impact Statement</i>	JLUS	Joint Land Use Study
GPS	global positioning system	JPADS	Joint Precision Airdrop System
Ground Maneuver	Enhanced Access to Ground Maneuver Space	JPARC	Joint Pacific Alaska Range Complex
GRTA	Gerstle River Training Area	JPARC Master \ Plan	JPARC Master Plan, August 2011
Guidance	“DoD American Indian/Alaska Native Policy: Alaska Implementation Guidance”	<i>JPARC Modernization and Enhancement EIS</i>	<i>Environmental Impact Statement for the Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska</i>
GVEA	Golden Valley Electric Association	KAC	Knik Arm Crossing
HAMMR	High Angle Mountain Marksmanship Range	km	kilometer
HAP	hazardous air pollutant	km ²	square kilometers
HMX	High Melting Explosive	KTAS	knots true airspeed
HTRW	hazardous, toxic, and radioactive waste	kV	kilovolt
IBCT	infantry brigade combat team	LAS	Land Administration System
ICDS	Improved Container Delivery System	LATN	low-altitude tactical navigation
ICRMP	Integrated Cultural Resources Management Plan	lb	pound
IFR	Instrument Flight Rules	L _{dnmr}	onset rate–adjusted day-night average sound level
INRMP	Integrated Natural Resources Management Plan	LFE	large force exercise
IR	Illumination Round		
IRO	Installation Range Office		

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LGB	laser-guided bomb	NEPA	National Environmental Policy Act
L _{max}	maximum noise level	NHPA	National Historic Preservation Act
LOS	Level of Service	NJT	Night Joint Training
LRAM	Land Rehabilitation and Maintenance	NLR	noise level reduction
LUPZ	Land Use Planning Zone	NM	nautical mile
LVC	Live-virtual-constructive	NM ²	square nautical mile
M	mach	NMFS	National Marine Fisheries Service
MBTA	Migratory Bird Treaty Act	NOAA	National Oceanic and Atmospheric Administration
MDS	mission design series	NOI	Notice of Intent
MEA	Minimum Enroute Altitude	NORAD	North American Aerospace Defense Command
MFE	major flying exercise	NOTAM	Notice to Airmen
MG	machine gun	NOTMAR	Notice to Mariners
MGS	mobile gun system	NO _x	nitrogen oxides
Missile Live-Fire	Missile Live-Fire for AIM-9 and AIM-120 in the Gulf of Alaska	NPDES	National Pollutant Discharge Elimination System
MK	mark	NPFMC	North Pacific Fishery Management Council
mm	millimeter	NRCS	National Resources Conservation Service
MMPA	Marine Mammal Protection Act	OCRM	Office of Ocean and Coastal Resource Management
MOA	Military Operations Area	OEIS	Overseas Environmental Impact Statement
MOCA	Minimum Obstacle Clearance Altitude	ORRV	off-road recreational vehicle
MOO	Mineral Opening Order	ORV	off-road vehicle
MOU	Memorandum of Understanding	PA	Programmatic Agreement
MOUT	Military Operations on Urban Terrain	PACOM	U.S. Pacific Command
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act of 1976	PCB	polychlorinated biphenyl
MSL	(above) mean sea level	PLO	Public Land Order
MTR	Military Training Route	PM ₁₀	particulate matter 10 microns or less in diameter
MVA	megavolt ampere	PM _{2.5}	particulate matter 2.5 microns or less in diameter
MW	megawatts	POL	petroleum, oil, and lubricant products
MWe	megawatts electrical	ppm	parts per million
N/A	not applicable	PRMP/FEIS	Proposed Resource Management Plan/Final
NAAQS	National Ambient Air Quality Standards		
National Register	National Register of Historic Places		
NCA	Northern Control Area		

List of Acronyms, Abbreviations, and Symbols

	Environmental Impact Statement	STIP	Statewide Transportation Improvement Program
PSD	prevention of significant deterioration	SUA	Special Use Airspace
PUA	Public Use Area	SUAIS	Special Use Airspace Information Service
R-	Restricted Area; e.g., Restricted Area 2202 (R-2202)	SWPPP	Storm Water Pollution Prevention Plan
RCRA	Resource Conservation and Recovery Act	TA	Training Area
RDX	Royal Demolition Explosive	TCP	traditional cultural property
RF	radio frequency	TFTA	Tanana Flats Training Area
RLOD	Realistic Live Ordnance Delivery	TFTA Access	Tanana Flats Training Area Roadway Access
RMA	Resource Management Area	TMAA	Temporary Maritime Activities Area
RMP	Resource Management Plan	TNT	trinitrotoluene
RNAV	Area Navigation	TOW	tube-launched, optically-tracked, wire-command data link, guided missile
ROD	Record of Decision	TPT	target practice tracer
ROI	region of influence	TRACON	Terminal Radar Approach Control
RPA	remotely piloted aircraft	TRI	Toxic Release Inventory
RS	Revised Statute	TRI-DDS	Toxic Release Inventory Data Delivery System
RST	(indicates a trail number)	TSCA	Toxic Substances Control Act
RTLA	Range and Training Land Assessment	U.S.C.	United States Code
S&I	flare safe & initiation (device)	UAS	unmanned aircraft system
SBCT	Stryker Brigade Combat Team	UAV	Unmanned Aerial Vehicle
SDB	Small Diameter Bomb	UAV Access	Unmanned Aerial Vehicle Access
SDZ	surface danger zone	UNK	Unknown
SEL	sound exposure level	USACE	U.S. Army Corps of Engineers
SFR	State Forest	USAGAK	U.S. Army Garrison-Alaska (now renamed USAG-FWA)
SHPO	State Historic Preservation Officer	USAG-FWA	U.S. Army Garrison Fort Wainwright, Alaska
SI	International System of Units	USARAK	U.S. Army Alaska
SO ₂	sulfur dioxide	USARTRAK	Army Recreational Tracking System
SOP	standard operating procedure	USFS	U.S. Forest Service
SP	State Park	USFWS	U.S. Fish and Wildlife Service
SRA	State Recreation Area		
SRC	State Recreation Center		
SRR	State Recreation River		
SRS	State Recreation Site		
STC	Sound Transmission Class		

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USGS	U.S. Geological Survey
UST	underground storage tank
UXO	unexploded ordnance
VFR	Visual Flight Rules
VMT	vehicle miles of travel
VOC	volatile organic compound
VORTAC	Fairbanks navigational aid
VR-	Visual Flight Rules Route
W-	Warning Area; e.g., Warning Area 612 (W-612)
WDZ	weapon danger zone
YTA	Yukon Training Area

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This *Environmental Impact Statement for the Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska* (the *JPARC Modernization and Enhancement EIS*) is prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 *et seq.*); the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500–1508); Executive Orders (EOs) 11514 and 11991; and the Environmental Quality Improvement Act of 1970, as amended (42 U.S.C. 4371 *et seq.*).

The U.S. Departments of Army and the Air Force are the joint lead Federal agencies for this Environmental Impact Statement (EIS). The Environmental Analysis of Army Actions (32 CFR 651) and the Air Force Environmental Impact Analysis Process (32 CFR 989) have been used to prepare this EIS, in addition to NEPA and CEQ regulations noted above. The Federal Aviation Administration (FAA) is a cooperating agency based in part on the U.S. Department of Defense (DoD) FAA Memorandum of Understanding (MOU) found in Appendix 7 of FAA Order 7400.2 that states, “When the DoD proposes that the FAA establish, designate, or modify SUA [Special Use Airspace], the FAA shall act as a cooperating agency for the evaluation of environmental impacts.”

The Army and Air Force organizations in Alaska responsible for the preparation of this EIS include U.S. Army Alaska (USARAK) and the 11th Air Force (11th AF), as coordinated by the Alaskan Command (ALCOM). ALCOM is a regional military command of the United States Armed Forces focusing on the State of Alaska and is a sub-unified command of the U.S. Pacific Command (PACOM).

The Joint Pacific Alaska Range Complex (JPARC), is composed of the military land ranges, maritime training areas, and airspace that provide critical training and testing environment to the DoD Service units based in Alaska. Specifically, today, the JPARC is composed of approximately:

- 65,000 square miles of available airspace.
- 2,490 square miles of land space with 1.5 million acres of maneuver land.
- 42,000 square nautical miles (NM²) of sea and air space in the Gulf of Alaska (GOA).

The DoD Services include the U.S. Air Force, Army, Coast Guard, Marine Reserves, and Navy. JPARC provides a realistic training environment and allows the Services to train for full spectrum engagements, ranging from individual skills to complex, large-scale joint engagements. Each year, thousands of people from the U.S. military Services; Federal, State and local agencies; allied nations; and nongovernmental organizations receive training in the JPARC.

Pursuant to guidance and philosophy found in DoD Directive 1322.18, *Military Training*, and in the Commander PACOM’s Alaska Joint Training Program of Excellence, the ALCOM, as the DoD’s regional joint headquarters in Alaska, has coordinated with the Services to develop a strategy to identify joint training opportunities in Alaska, maximize the utilization of training resources, and improve joint context training at all levels. The *JPARC Modernization and Enhancement EIS* will evaluate the potential environmental impacts for the reasonably foreseeable proposed projects associated with this strategy.

ES.2 PURPOSE AND NEED FOR THE PROPOSED ACTIONS

ES.2.1 Purpose of the Proposed JPARC Actions

As joint war fighting doctrine has developed since the end of the Cold War and after September 11, 2001, as new weapons systems and platforms come on-line, and as joint context training has evolved, JPARC, under its current configuration, can no longer fully meet the training and testing requirements for forces stationed in, and exercises occurring in and near, Alaska. The purpose of the JPARC proposed actions is to modernize and enhance JPARC in Alaska and to best support the military exercises in and near Alaska. JPARC modernizations and enhancements would enable realistic joint training and testing to support emerging technologies, respond to recent battlefield experiences, and train with tactics and new weapons systems to meet combat and national security needs.

ES.2.2 Need for Action

The JPARC modernization and enhancement proposed actions are needed to provide a training environment with the capacity and capabilities to fully support required training tasks for operational units participating in joint exercises. Four trends drive the need to modernize and enhance JPARC:

- Technological advances in military equipment and systems
- Advances in combat tactics and techniques
- A continued need for diversified, efficient, and realistic training
- The need to maximize the utility of scarce resources and increase joint training through common infrastructure

ES.3 JPARC OVERVIEW

JPARC consists of all air, land, and sea training capacity and assets in Alaska. This includes, but is not limited to, the ranges, training areas, restricted areas, and Military Operations Areas (MOA) associated with Fort Greely; Fort Wainwright; Joint Base Elmendorf-Richardson (JBER); Eielson Air Force Base (AFB); Donnelly, Tanana Flats, Yukon, Gerstle River, and Black Rapids Training Areas; and the U.S. Navy's Temporary Maritime Activities Area (TMAA) located in the GOA. MOAs are airspace designated to separate or segregate certain nonhazardous military activities from non-military aircraft and are not always in use. Restricted areas contain hazardous activities, therefore, flight within this airspace, while not prohibited, is subject to restriction.

JPARC supports local training for USARAK; the 3rd Wing, 673rd Air Base Wing, and 354th Fighter Wing of the Air Force; the Navy's Pacific Fleet; the Alaska Army and Air National Guards; the Coast Guard; and the Marine Reserves. It is home to Joint Chiefs of Staff Exercises NORTHERN EDGE and RED FLAG—Alaska, two large-scale and critically important tactical-level field training exercises (FTXs). JPARC also supports numerous Air Force units in their routine qualification training in conjunction with their deployment to Alaska to participate in RED FLAG—Alaska, the Army's Cold Regions Test Center and the U.S. Missile Defense Agency, along with other homeland defense missions and exercises such as Joint Chiefs of Staff Exercise ARCTIC EDGE.

ES.3.1 JPARC Master Plan

The *JPARC Master Plan* compiled all of the training and testing requirements for military units and DoD-sponsored exercises in the State of Alaska and provides a long-term 30-year strategy to coordinate

and deconflict military range and airspace developments. Based on these requirements, the August 2011 *JPARC Master Plan* identified 21 distinct objectives for the modernization and enhancement of JPARC. The objectives were then developed into the following 19 actions, which are existing planning efforts, new actions, or potential future actions that require additional planning. These actions fulfill capabilities needed immediately by the multiple military units and the exercises they conduct in the State of Alaska but are in different stages of planning. The *JPARC Master Plan* is a living document that will continue to respond to the evolving nature of military training and testing requirements.

- Fox 3 MOA Expansion
- Joint Combined Arms Live Fire (JCALF)
- Enhanced Ground Maneuver Space
- Tanana Flats Training Area (TFTA) Roadway Access
- Intermediate Staging Bases (ISBs)
- Urban Target Set
- Joint Precision Airdrop System (JPADS)
- Digital Range Connectivity
- Paxon MOA Addition
- Night Joint Training (NJT)
- Complex Urban Terrain
- Missile Live-Fire for AIM-9 and AIM-120
- Helicopter Gunnery
- Realistic Live Ordnance Delivery (RLOD)
- Unmanned Aerial Vehicle (UAV) Access
- Joint Air–Ground Integration Complex (JAGIC)
- Low-Altitude Tactical Navigation (LATN) Training
- Additional Dry Targets
- High Angle Mountain Marksmanship Range (HAMMR)

ES.3.2 Screening for National Environmental Policy Act Analysis

The Master Plan actions underwent a rigorous screening process to gauge which projects would be considered definitive and which would be considered programmatic for this EIS analysis. This screening process also identified projects independent from this EIS but important to analyze as cumulative impacts.

Because the proposed actions analyzed in this EIS are in various stages of development and have varying timelines for implementation, this EIS has two levels of decisions—programmatic and definitive. Programmatic decisions will be announced in the Record of Decision (ROD) for proposed actions that have adequate detail for analysis of a general capability, but have flexibility relative to location or level of use. Also, actions that are currently not identified for funding or that would take many years to implement will be evaluated programmatically. This class of decisions would form the basis for “tiering” future environmental analyses once actions are more fully defined or are closer to the time of

implementation. Definitive (i.e., specific, project-level) decisions will be included in the ROD for proposed actions that have sufficient definition to allow detailed EIS analysis. Decisions may incorporate specific mitigation measures identified in the analysis to avoid, reduce, or implement management actions to mitigate significant adverse impacts. This EIS will serve to support the decision for this class of actions.

This EIS does not include several objectives in the Master Plan that are not yet fully defined. While it is important to include all requirements (either known or conceptual) in planning the future vision for JPARC, it is premature to include projects in this EIS if there is not enough information to analyze their impacts. As these concepts gain more definition and development, they will undergo an environmental impact analysis process in the future. Other projects in the Master Plan, generally smaller in scope, are currently undergoing evaluation and will be considered in separate NEPA documents. These projects are considered in the cumulative impacts analysis in Chapter [4.0](#).

The following actions are in advanced stages of planning (See [Figure 1-4](#)). They will be analyzed in separate NEPA documentation but will be incorporated in the cumulative impact analysis of the *JPARC Modernization and Enhancement EIS*:

- LATN Training (Air Force)
- Urban Target Set (Army)
- Additional Dry Targets (Air Force)
- HAMMR (Army)
- Helicopter Gunnery (Army)

The following well-defined actions are ripe for decision and have been specifically addressed in the JPARC Modernization and Enhancement EIS as definitive actions by Army or Air Force proponents (See [Figure 1-4](#)):

- Fox 3 MOA Expansion (Air Force)
- Paxon MOA Addition (Air Force)
- RLOD (Air Force)
- Battle Area Complex (BAX) Restricted Area Addition (Army)
- Expansion of R-2205 to Include the Digital Multi-Purpose Training Range (DMPTR) (Army)
- NJT (Air Force)
- UAV Access (Army)

The following actions need additional planning or are preceded by independent actions and have been analyzed programmatically with as much detail as is available in the *JPARC Modernization and Enhancement EIS* (See [Figure 1-4](#)):

- Enhanced Access to Ground Maneuver Space (Army)
- TFTA Roadway Access (Army)
- Intermediate Staging Bases (ISBs) (Army)
- JAGIC (Army)

- Missile Live-Fire for AIM-9 and AIM-120 (Air Force)
- JPADS (Air Force)

Final decisions with respect to NEPA on the programmatic actions will require subsequent tiered or supplemental environmental impact analyses.

The following actions have been considered as potential proposed actions, but have not been carried forward in the *JPARC Modernization and Enhancement EIS*:

- **Digital Range Connectivity.** Digital range connectivity is a general requirement rather than a specific action. It describes an objective that applies to all projects rather than a specific or programmatic decision for any single project or group of projects. Connections and infrastructure will be incremental, and will be included over time as needed to support ranges and new facilities.
- **Complex Urban Terrain.** The Army is only beginning to understand how to train for this critical challenge to current operations. As doctrine, funding, and risk mitigation are developed, this training will become central to deploying forces into combat. Until then, decisions on where to conduct this training are premature.

ES.4 DESCRIPTION OF PROPOSED ACTIONS AND ALTERNATIVES

The actions being proposed to achieve the vision for JPARC are briefly described below and more thoroughly described in Chapter 2.0 of the EIS. These actions are independent of each other and have standalone value for improving Army and Air Force training exercises.

NEPA implementing regulations provide guidance on the consideration of alternatives in an EIS. These regulations require the decision maker to consider the environmental effects of the Proposed Action and a range of alternatives to the Proposed Action (40 CFR 1502.14). The range of alternatives includes reasonable and practicable alternatives, which must be rigorously and objectively evaluated, as well as other alternatives that may meet the purpose and need of the *JPARC Modernization and Enhancement EIS*. To be “reasonable,” an alternative must meet the stated purpose of and need for the Proposed Action. To be “practicable,” an alternative must be able to be fully implemented as a JPARC modernization or enhancement project. For purposes of this EIS, the No Action Alternative serves as the baseline level of operations, representing the regular and historical level of JPARC training activity. Consequently, the No Action Alternative stands as no change from current baseline levels of training usage. The potential impacts of the current level of training (defined by the No Action Alternative) is compared to the potential impacts of activities proposed under each alternative. The purpose of including a No Action Alternative in environmental impact analyses is to ensure that the Army and Air Force compare the potential impacts of the proposed JPARC modernization and enhancement proposals to the known impacts of maintaining the status quo.

ES.4.1 Definitive Actions Evaluated in this Environmental Impact Statement

Fox 3 MOA Expansion and New Paxon MOA (Figure 2-1 and Figure 2-2): The Air Force proposes to expand the existing Fox 3 MOA and establish a new, adjacent Paxon MOA to provide the vertical and horizontal airspace structure needed to better accommodate low-altitude threat and multi-axis aircraft training mission requirements during JPARC training exercises. The Air Force intends to consider the following alternatives, as well as a No Action Alternative: **Alternative A** includes the proposed expanded Fox 3 MOA and the proposed new Paxon MOA with both the high- and low-altitude MOAs. The Fox 3 MOA would be stratified into low (500 feet above ground level [AGL] up to but not including 5,000 feet AGL) and high (5,000 feet AGL up to but not including FL180) sectors, while the Paxon MOA would be

stratified into low (500 feet AGL up to but not including 14,000 feet above mean sea level [MSL]) and high (14,000 feet MSL up to but not including FL180) sectors. **Alternative E (Preferred Alternative)** is the same as Alternative A, except the airspace structure for the Fox 3 MOA expansion coverage would be approximately 1.164 million acres (1,820 square miles) smaller in size, with the southern boundary moved approximately 20 NM to the north.

Realistic Live Ordnance Delivery (Figure 2-3 through Figure 2-5): As the range and lethality of modern Air Force fighter aircraft and ordnance increase, so do the amounts of training area, training time, and airspace required to safely and effectively train with these weapons. The current ranges and restricted airspace of JPARC are not capable of supporting realistic training with modern and emerging aircraft and ordnance. The Air Force proposes to establish a realistic air and ground training environment that would accommodate live ordnance delivery of modern and emerging fighter aircraft by considering the following alternatives, as well as a No Action Alternative: **Alternative A (Preferred Alternative)** proposes the use of existing targets in the Oklahoma Impact Area within Restricted Area 2202 (R-2202), with the expansion of this restricted airspace to the west to encompass the airspace and underlying lands for both live and inert ordnance delivery. **Alternative B** proposes that live ordnance delivery be conducted on existing targets in the Oklahoma Impact Area and that inert ordnance delivery be conducted in the Blair Lakes Impact Area, requiring a proposed new restricted area linking R-2211 and R-2202. This alternative proposes that the existing R-2202 be expanded to the west to encompass the weapons footprints, altitudes, and safety zones up to the unlimited ceiling of R-2202 D. The altitudes needed for RLOD would depend on the type of ordnance used and aircraft types and profiles delivering this ordnance. This proposed expansion would provide the optimum additional restricted airspace required to contain any hazardous conditions that may occur with the safety footprints for ordnance use within the impact areas. **Both Alternatives A and B** propose temporary impact areas and targets for inert ordnance delivery within Donnelly Training Area (DTA). When only these inert targets are active, restricted areas outside of military lands would not be required and ground access restrictions would be limited to within the existing R-2202 restricted area in DTA.

Battle Area Complex (BAX) Restricted Area Addition (Figure 2-6 and Figure 2-7): Use of the existing BAX Controlled Firing Area (CFA) is currently very constrained in terms of the types, levels, and intensity of training that can be undertaken. To fully support more realistic Army and joint training at the BAX, the action alternative proposed by the Army requires the addition of new restricted area of sufficient size to provide the protective airspace required for the hazardous air and ground activities and weapons safety footprints to fully accommodate training. The two Army action alternatives propose to establish a new restricted area over the BAX area within DTA-East, where 100 percent of the land is currently withdrawn by the military. Utilization of the expanded restricted airspace would be between about 106 to 242 days annually. The airspace could be active 12 hours per day, 7:00 a.m. to 7:00 p.m. local time, Monday through Friday, and other times as required and stipulated by NOTAM.

For each alternative, the airspace is proposed to be of sufficient area to encompass hazardous activities and weapons footprints for those types of munitions and ordnance to be used in this area. The Army intends to consider the following alternatives, as well as a No Action Alternative: **Alternative A** proposes to establish restricted area over the BAX and the Combined Arms Collective Training Facility (CACTF) and to subdivide the restricted airspace into two sectors: R-XXXXA (north) and R-XXXXB (south). The new restricted airspace would be stratified into three altitude levels as follows: surface up to 5,999 feet MSL; 6,000 feet MSL up to 17,999 feet MSL; and 18,000 feet MSL up to FL220. The majority of BAX activities (approximately 60 percent of training) would occur in the lower-altitude layer (below 6,000 feet MSL). **Alternative B (Preferred Alternative)** proposes to establish a larger expanded restricted area over the BAX, the CACTF, and the CACTF CFA and to subdivide the restricted area into three sectors: R-XXXXA (north), R-XXXXB (center), and R-XXXXC (south) with the use of this airspace being the same as Alternative A. This proposed restricted area would be stratified into three

altitude levels as follows: surface up to 5,999 feet MSL; 6,000 feet MSL up to 14,999 feet MSL; and 15,000 feet MSL up to FL220.

Expansion of R-2205 (Figure 2-9): This Army Proposed Action proposes to expand R-2205 to include the DMPTR area within the Yukon Training Area (YTA), as well as the airspace currently designated as the Combined Arms Live-Fire Exercise (CALFEX) north and south CFAs that overlie the YTA and are used for small arms firing, artillery, ground-launched antitank guided missiles, and mortars (**Preferred Alternative**). The DMPTR is currently very constrained in terms of the types, levels, and intensity of training that can be undertaken. Restricted area is needed to be of sufficient size over these areas to provide the protective airspace required for the hazardous air and ground activities and weapons safety footprints to fully accommodate training. The restricted area would extend from the surface up to FL310, to support live-fire training (covering an area of 251,000 acres [392 square miles]). Currently the Yukon MOA overlies YTA. The restricted area would provide protective areas for the hazardous activities and weapons surface danger zones of sufficient size for the types of ordnance used within the area. The proposed action would subdivide the new restricted area into segmented blocks to allow restricted area use within Eielson AFB Class D airspace and integrate UAVs into training. The military would only activate those subdivisions and altitudes needed to support individual UAV and other mission requirements, mostly at lower altitudes during short periods for UAV transit between segments. Utilization of the expanded restricted airspace is between about 200 to 300 days annually. The airspace could be active 12 hours per day, 7:00 a.m. to 7:00 p.m. local time, Monday through Friday, and other times as required and stipulated by NOTAM.

Night Joint Training (Figure 1-1): Enemy forces frequently use the cover of darkness to hide their activity. Advanced night vision capabilities and equipment have been developed to support Air Force combat operations. Undertaking night flying operations, both during major joint flying exercises and routine training, is a critical training requirement. While night vision equipment capabilities have advanced, the available time to conduct such training has been reduced for the Air Force in Alaska due to the 2005 nationwide extension of daylight saving time into March and November. Currently, the JPARC MOAs close at 10:00 p.m., and due to the extension of daylight saving time, it is not dark enough prior to 10:00 p.m. during the months of October and March to conduct a night major flying exercise (MFE). This Air Force proposal would extend the hours JPARC MOAs are available for use from 10:00 p.m. to midnight, allowing a 2-week RED FLAG–Alaska with NJT to occur in March or October.

During the RED FLAG–Alaska night portion, the live and inert munitions currently dropped during the evening training period would be dropped after 10:00 p.m. Routine training (Alternative B) could include night bombing training outside of the MFE construct. This is not a change in the numbers of munitions dropped, just a change in time of day. These munitions would typically be released in the existing Stuart Creek Impact Area within R-2205 in YTA and the existing Oklahoma Impact Area in R-2202 in DTA-West. These areas are currently used by the Army for late-night munitions training.

The Air Force intends to consider the following alternatives, as well as a No Action Alternative: **Alternative A** proposes to extend the JPARC MOAs operating hours to allow Air Force tactical flight operations until midnight and landing by 1:00 a.m., local time, during March and October for MFEs in Alaska. This would allow night training during these months from a minimum of 1.5 hours to a maximum of 2.5 hours for each exercise. **Alternative B (Preferred Alternative)** proposes to extend the JPARC MOAs operating hours to allow Air Force tactical flight operations until midnight and landing by 1:00 a.m., local time, during all months of the year for MFEs and also for all Air Force routine training purposes.

Unmanned Aerial Vehicle Access (Figure 2-10 and Figure 2-11): UAVs have become critical aircraft in the conduct of reconnaissance, surveillance, and other activities; UAV access throughout the JPARC

ranges and airspace is critical to enhance Army and Air Force training and exercises at JPARC. *The following UAV corridors have been developed as individual, standalone proposed Army action alternatives:* Eielson AFB to R-2211; Eielson AFB to R-2205; Allen Army Airfield (AAF) to R-2202; R-2202 to R-2211; R-2205 to R-2202; Fort Wainwright to R-2211; and Fort Wainwright to R-2205. The Army intends to consider the following alternatives, as well as a No Action Alternative: **Alternative A (Preferred Alternative)** would establish new restricted airspace for each UAV corridor identified above; **Alternative B** would establish defined airspace having special operating provisions via a Certificate of Authorization (COA) for each UAV corridor identified above.

ES.4.2 Programmatic Actions Evaluated in this Environmental Impact Statement

Enhanced Access to Ground Maneuver Space (Figure 2-12): The Enhanced Access to Ground Maneuver Space proposal considers an Army proposed action alternative to provide year-round accessibility to JPARC ground training areas and a no action alternative. The Army currently lacks year-round accessibility, circulation patterns, and maneuver space in TFTA, DTA, and YTA.

Tanana Flats Training Area Roadway Access (Figure 2-13): The TFTA Roadway Access is an Army proposal to provide year-round roadway access to the TFTA to support its planned use as an Army and joint live-fire and maneuver training area. The road access study areas considered as part of the proposed action includes a general west-southwesterly path of the roadway from a point near the future Northern Rail Extension Tanana River Crossing into the training area proximate to the Blair Lakes Impact Area. The Army intends to consider various roadway access alignments and a no action alternative as a future NEPA action when this proposal is ready for a decision to be made.

Joint Air–Ground Integration Complex (Figure 2-14): The Army and Air Force require a facility to train and test air and ground combat units on skills necessary to detect, identify, and effectively engage targets while directing attack aviation as in actual combat. A modern facility designed to support this type of training currently does not exist at JPARC. The Army proposes to develop the JAGIC to provide this capability. The Army intends to consider a proposed action alternative and a no action alternative. The study areas under consideration as part of the proposed action, include locating the JAGIC in the central area of DTA-West, proximate to the western boundary of the Oklahoma Impact Area within R-2202; near the Stuart Creek Impact Area within YTA within R-2205; or near the Blair Lakes Impact Area near the southern boundary of TFTA within R-2211.

Intermediate Staging Bases (Figure 2-15): Currently, Soldiers spend up to 6 hours traveling to and from ground training sites within JPARC. This travel reduces available on-range training time and increases risks of traffic accidents. The ISBs are intended for Army and joint use. The Army intends to consider a proposed action alternative and a no action alternative. ISBs are proposed at key points along the planned Alaska Rail Corridor close to the planned bridge crossings. The Army proposes to locate and construct one 1,000-Soldier and three 500-Soldier ISBs within existing JPARC ground training areas, including TFTA, YTA, and DTA-West, to reduce travel time, increase safety, and increase on-range training time. Each facility would be constructed on sites of approximately 110 acres. The no action alternative involves continuing the use of existing temporary “relocatable” ISB facilities.

Missile Live-Fire for AIM-9 and AIM-120 (Figure 2-16): The AIM-9 and AIM-120 missile systems are the main air-to-air armaments for Air Force fighter aircraft training in Alaska. For effective training to be conducted with these systems, live training shots need to be executed as part of both individual pilot training and joint training exercises with other air and ground units. The Air Force intends to consider a proposed action alternative and a no action alternative. The proposed action considers the use of the existing TMAA (300 NM long by 150 NM wide; surface to flight level (FL) 600; includes subsurface

operating areas), and Warning Area 612 (W-612) (surface to FL290) in the GOA for the missile live fire delivery of the AIM-9 and AIM-120 missiles by Air Force fighter aircraft.

JPADS Drop Zones (Figure 2-17): JPADS is a global positioning system (GPS)-guided precision airdrop system designed to deliver supplies and equipment to ground forces. JPADS is currently used on a very limited basis within JPARC. Alaska-based Airmen with the requirement to conduct JPADS training must currently travel to Yuma Proving Ground, Arizona, to conduct this training. The Air Force proposes to establish JPADS Drop Zones (DZs) as part of JPARC MFEs and other large training exercises at optimum operational capabilities. The Air Force intends to consider a proposed action alternative and a no action alternative. The study areas under consideration as part of the proposed action include potential JPADS operations conducted in R-2205 in YTA or JPADS operations conducted in R-2202 outside of duded impact areas. The key distinction between the study areas is that R-2205 currently has more time and space available to accommodate JPADS DZ training exercises.

ES.4.3 Environmental Impact Analysis Process

The environmental impact analysis process (EIAP) is the Air Force process for ensuring NEPA compliance. The first step in this process is the preparation of a Notice of Intent (NOI) to develop an EIS. The NOI provides an overview of the proposed actions, alternatives, and the scope of the EIS. The NOI for this project was published in the *Federal Register* on December 8, 2010, and in six newspapers: *Anchorage Daily News*, *Alaska Star*, *Copper River Record*, *Fairbanks Daily News-Miner*, *Delta Wind*, and *The Frontiersman* (see Appendix A, *Public Scoping Summary*). The NOI and newspaper notices included information about the proposed actions, the scoping comment procedures, the project website (<http://www.jparceis.com>), and the dates and locations of the scoping meetings.

The Air Force and Army formally invited the FAA, the Bureau of Land Management (BLM), the U.S. Fish and Wildlife Service (USFWS), and the Environmental Protection Agency (EPA) to be cooperating agencies in preparation of this EIS. The FAA officially became a cooperating agency on March 10, 2011. The BLM, USFWS, and the EPA have been involved as participating agencies, as applicable. ALCOM coordinated government-to-government consultation with Federally recognized tribes as part of the *JPARC Modernization and Enhancement EIS*, in accordance with DoD Instruction 4710.02, *Interaction with Federally Recognized Tribes* (2006), and the 2007 “DoD American Indian/Alaska Native Policy: Alaska Implementation Guidance” (Guidance) (ALCOM 2007). This policy is designed to enhance government-to-government working relationships between the DoD and the tribes in Alaska.

The scoping process is the next step in the NEPA EIS preparation phase. Scoping is an early and open public comment process that involves the public, communities, organizations, and Federal and State agencies via mailings, notifications, and scoping meetings. The purpose of scoping was to obtain public input on the proposed action and alternatives, as well as to gain a better understanding of the potential issues and concerns related to the proposals. This is the first major step to scope or identify the relevant issues to be analyzed in depth in the EIS and to eliminate issues that are not relevant. The Air Force and Army, with the support of ALCOM, conducted public scoping meetings between January 13 and 26, 2011, in the following communities likely to be affected by the JPARC proposed actions to solicit public and agency input: Anchorage, Glennallen, Delta Junction, Fairbanks, Healy, Talkeetna, and Wasilla, Alaska.

As a result of the scoping process, the Army and Air Force received comments from the public, as well as agencies, interested organizations, and Federally recognized Alaska Native Tribes and Nations, which were considered in the preparation of the draft EIS. Overall, agencies, government representatives, nongovernmental organizations, citizens, and Alaska Natives provided 770 website comments, letters, e-mails, phone comments, and faxes to ALCOM. In those 770 comments, commenters expressed over 2,000 concerns.

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The actions and topics of greatest concern included the Fox 3 expansion, the new Paxson MOA, the lowering of the MOA to 500 feet, and related impacts on civil aviation, residents, recreation, hunting, wildlife (particularly caribou/moose migration and calving areas and trumpeter swan/migratory bird breeding grounds), subsistence activities, the tourism industry, and commercial aviation access. Specific areas of concern included Fairbanks International Airport access and the areas of Lake Louise, Copper Basin, the Talkeetna Mountains, and the Denali Highway corridor. Safety concerns mainly focused on airspace conflicts below 5,000 feet AGL, particularly the mix of high-speed aircraft with low-speed general aviation aircraft. Hazardous waste concerns mainly centered on the history and future potential of unexploded ordnance closing off access to public lands. Commenters were concerned about airspace proposed over the BAX and the impacts to air traffic in Isabel Pass. Several commenters expressed concern overall that these proposals negatively impacted the highly populated, highly used, road-accessible Alaskan beltway. Socioeconomic concerns related to the tourism, mining, and guiding industries.

Several commenters requested that training exercises avoid the summer and fall season due to the high tourism traffic during those times of year. Other major concerns related to impacts on personal freedoms and Alaskan values of solitude, peace, and quiet and utilizing nature for recreation as well as subsistence. Additional scoping issues are summarized in [Table 1-8](#) of the EIS.

Pursuant to NEPA, the Air Force and Army prepared a draft EIS, incorporating public input from the scoping process by setting forth new or modified alternatives for some of the proposed actions. The comments also focused the EIS analysis on relevant issues required to be analyzed in depth and provided information to EIS preparers regarding potential impacts that had not been anticipated. During the draft EIS preparation process, ALCOM issued two newsletters to the public to provide updates, regarding the JPARC proposed actions and alternatives as a result of public and agency input.

The draft *JPARC Modernization and Enhancement EIS* described the JPARC purpose and need, explained the proposed action and alternatives, presented the existing conditions in the region potentially affected, and provided analysis of the environmental consequences of the proposed actions and each alternative, including the no action alternative for each definitive and programmatic proposal. Specifically, the EIS addressed environmental consequences to airspace management and use, noise, flight and ground safety, air quality, physical resources such as soils and permafrost, water resources and floodplains, hazardous materials/waste, biological resources, wetlands, cultural resources, land use, public access, and recreation, infrastructure and transportation assets, socioeconomics, subsistence, environmental justice and risks to children, and cumulative impacts. Cumulative impacts were evaluated to account for impacts that may occur when considering all aspects of the proposed actions and alternatives in a wider context, both local and regional, and in combination with other major past, present, and future actions in the region.

The draft EIS was made available for public review and comment on the detailed statement and analysis. The public review period for the draft EIS began on March 30, 2012, when the Notice of Availability was published in the *Federal Register* and concluded on July 9, 2012, after the public requested an extension of the normal 45-day draft EIS review period.

The draft EIS review process included a series of public hearings held by the Air Force and Army with the support of ALCOM during the review and comment period. Notices were placed in six newspapers: *Anchorage Daily News*, *Alaska Star*, *Copper River Record*, *Fairbanks Daily News-Miner*, *Delta Wind*, and *The Frontiersman*. Notification was also provided through the project website (www.jparceis.com), press releases, public service announcements, posted fliers in surrounding communities, and letters or mailers sent to entities on the project mailing list. Public hearings were held in the same geographic venues as the scoping meetings; however, in response to public input, three additional venues were added in Paxson (Dot Lake), Palmer, and Lake Louise, Alaska. Pursuant to the NEPA requirements and CEQ

regulations, public hearing objectives included providing the public and government agencies a copy of the draft EIS, a forum to learn more about the draft EIS and the proposal, and ample opportunity to comment on the draft EIS. Throughout the comment period the public had the opportunity to submit comments on the draft EIS orally or in writing at the public hearings, or any time via mail, phone, or the project website.

At the close of the draft EIS public comment period, the Army and Air Force prepared the final EIS. Preparation, coordination, approval, filing, and public notice of the final EIS is the same as the process undertaken for the draft EIS except that the public need not be invited to comment during the 30-day post-filing waiting period in accordance with Army and Air Force NEPA implementing regulations.

Once the draft EIS public comment period closed, the Army and Air Force conducted a thorough and rigorous review of all of the comments received on the draft EIS. A total of 269 comment submittals were received on the draft EIS. Each comment submittal was then broken out or “bracketed” into specific comments, which totaled 1,363 bracketed comments. The Army and Air Force reviewed and responded specifically to each comment in the final EIS. A more detailed summary of the draft EIS review process is contained in Appendix M, *Draft EIS Review Process and Public Hearing Summary*. Appendix N, *Draft EIS Comments and Responses*, contains copies of public and agency comments received during the draft EIS review process and responses to those comments.

ES.4.4 Environmental Requirements

The Services must comply with a variety of State and Federal environmental laws, regulations, and EOs. These are described in more detail in Appendix B, *Definition of the Resources and Regulatory Settings*, of the EIS and include the following:

- FAA Airspace Regulations (49 U.S.C. 40103)
- FAA Aviation Safety and Noise Abatement Act of 1979 (49 U.S.C. 47501–47507)
- U.S. Air Force Mishap Prevention Program (Air Force Instruction [AFI] 91-202)
- Aviation Flight Regulations (Army Regulation [AR] 95-1)
- Clean Air Act (42 U.S.C. 7401–7671)
- Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. 1251–1387)
- Rivers and Harbors Act (33 U.S.C. 401–426)
- Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6901 *et seq.*)
- Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11001–11050)
- Compensation and Liability Act of 1980 (42 U.S.C. 9601 *et seq.*), as amended by the Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. 9601–9675)
- Community Environmental Response Facilitation Act of 1992 (42 U.S.C. 9620)
- Energy Independence and Security Act (42 U.S.C. 17001)
- Endangered Species Act (ESA) (16 U.S.C. 1531–1544)
- Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361–1407)
- Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703–711)

- Bald and Golden Eagle Protection Act (16 U.S.C. 668—668c)
- EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (66 *Federal Register* 3853, January 17, 2001)
- Sikes Act (16 U.S.C. 670)
- Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) for Essential Fish Habitat (EFH) (16 U.S.C. 1801–1891)
- National Historic Preservation Act (NHPA) (16 U.S.C. 470)
- Alaska National Interest Lands Conservation Act (ANILCA) (16 U.S.C. 3101–3233)
- Alaska Native Claims Settlement Act of 1971 (43 U.S.C. 1601–1629)
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 *Federal Register* 7269, February 16, 1994)
- EO 13045, *Environmental Health and Safety Risks to Children* (62 *Federal Register* 19885, April 23, 1997)

ES.4.5 Summary of Effects Analysis

Appendix B, *Definition of the Resources and Regulatory Settings*, of the EIS describes existing environmental conditions for resources potentially affected by the proposed actions and alternatives described in Chapter [2.0](#). Chapter [3.0](#) identifies and assesses the environmental consequences of the Proposed Actions and Alternatives. The affected environment and environmental consequences are described and analyzed according to the resource categories identified in [Table ES-1](#).

[Table ES-1](#) also shows the potential impacts of each proposed action in each of these resource areas. For proposals with multiple alternatives, the table reflects the overall findings for the highest potential change for each of the resource topics. The key at the bottom of the table shows that the lightest entries have no adverse impact and that the dark purple entries have the potential for significant adverse impacts that may require management actions or mitigations to avoid or reduce impacts. Entries in between have a potential for adverse impact, which may require management actions or mitigations to avoid or reduce impacts, but the impact is not significant.

Specific details regarding significance determinations associated with the color ratings for each resource area are provided in the EIS section specified in the table. For example, airspace management and use impacts for the Fox 3/Paxon MOA proposal are addressed in EIS Section [3.1.1](#).

Table ES-1. Comparative Analysis of EIS Proposed Actions and Alternatives

Resource	Definitive Proposals						Programmatic Proposals*					
	Fox 3 MOA Expansion and New Paxon MOA	Realistic Live Ordnance Delivery	Battle Area Complex Restricted Area	Expand Restricted Area R-2205	Night Joint Training	Unmanned Aerial Vehicle Access	Enhanced Ground Maneuver Space	Tanana Flats Training Area Roadway Access	Joint Air-Ground Integration Complex	Intermediate Staging Bases	Missile Live Fire for AIM-9 and AIM-120 in the Gulf of Alaska	Joint Precision Airdrop System Drop Zones
	Section Number											
Airspace Management and Use	3.1.1^a	3.2.1	3.3.1^a	3.4.1	3.5.1	3.6.1^a	3.7.1	3.8.1	3.9.1	3.10.1	3.11.1	3.12.1
Noise	3.1.2	3.2.2	3.3.2	3.4.2	3.5.2	3.6.2	3.7.2	3.8.2	3.9.2	3.10.2	3.11.2	3.12.2
Safety - Flight	3.1.3^a	3.2.3	3.3.3^a	3.4.3^a	3.5.3^a	3.6.3^a	3.7.3	3.8.3	3.9.3	3.10.3	3.11.3	3.12.3
Safety - Ground	3.1.3	3.2.3^a	3.3.3^a	3.4.3^a	3.5.3	3.6.3	3.7.3	3.8.3	3.9.3	3.10.3	3.11.3	3.12.3
Air Quality	3.1.4	3.2.4	3.3.4	3.4.4	3.5.4	3.6.4	3.7.4	3.8.4	3.9.4	3.10.4	3.11.4	3.12.4
Physical Resources – Soils/permafrost	3.1.5	3.2.5^a	3.3.5	3.4.5	3.5.5	3.6.5	3.7.5	3.8.5	3.9.5	3.10.5	3.11.5	3.12.5
Water Resources	3.1.6	3.2.6^a	3.3.6^a	3.4.6	3.5.6	3.6.6	3.7.6	3.8.6	3.9.6	3.10.6	3.11.6	3.12.6
Floodplains	3.1.6	3.2.6	3.3.6	3.4.6	3.5.6	3.6.6	3.7.6	3.8.6	3.9.6	3.10.6	3.11.6	3.12.6
Hazardous Materials & Waste	3.1.7	3.2.7	3.3.7^a	3.4.7^a	3.5.7	3.6.7	3.7.7	3.8.7	3.9.7	3.10.7	3.11.7	3.12.7
Biological Resources	3.1.8^a	3.2.8	3.3.8^a	3.4.8^a	3.5.8^a	3.6.8	3.7.8	3.8.8	3.9.8	3.10.8	3.11.8	3.12.8
Wetlands	3.1.8	3.2.8	3.3.8	3.4.8	3.5.8	3.6.8	3.7.8	3.8.8	3.9.8	3.10.8	3.11.8	3.12.8
Cultural Resources	3.1.9	3.2.9	3.3.9^a	3.4.9^a	3.5.9	3.6.9	3.7.9	3.8.9	3.9.9	3.10.9	3.11.9	3.12.9
Land Use – Land Management and Use	3.1.10^a	3.2.10^a	3.3.10^a	3.4.10^a	3.5.10^a	3.6.10	3.7.10	3.8.10	3.9.10	3.10.10	3.11.10	3.12.10
Land Use – Public Access	3.1.10^a	3.2.10^a	3.3.10^a	3.4.10	3.5.10^a	3.6.10	3.7.10	3.8.10	3.9.10	3.10.10	3.11.10	3.12.10
Land Use – Recreation	3.1.10^a	3.2.10^a	3.3.10	3.4.10	3.5.10^a	3.6.10	3.7.10	3.8.10	3.9.10	3.10.10	3.11.10	3.12.10
Infrastructure and Transportation	3.1.11	3.2.11	3.3.11	3.4.11	3.5.11	3.6.11	3.7.11	3.8.11	3.9.11	3.10.11	3.11.11	3.12.11
Socioeconomics	3.1.12^a	3.2.12^a	3.3.12^a	3.4.12	3.5.12^a	3.6.12	3.7.12	3.8.12	3.9.12	3.10.12	3.11.12	3.12.12
Subsistence	3.1.13^a	3.2.13	3.3.13^a	3.4.13^a	3.5.13	3.6.13^a	3.7.13	3.8.13	3.9.13	3.10.13	3.11.13	3.12.13
Environmental Justice	3.1.14	3.2.14	3.3.14	3.4.14	3.5.14	3.6.14	3.7.14	3.8.14	3.9.14	3.10.14	3.11.14	3.12.14

COLOR KEY:

No beneficial or adverse impact.	Section includes proposed management actions.
Potential for adverse impact, but not significant; may require management actions or mitigations to avoid or reduce impacts.	Section includes proposed management actions/mitigations.
Potential for significant adverse impacts; requires management actions or mitigations to avoid or reduce impacts.	Section includes proposed management actions/mitigations.

* Analysis is based upon available data. Actual impacts have not been evaluated and mitigations have not been identified for Programmatic proposals.

a. Mitigations and/or management actions are proposed for this resource area under this proposal.

[Table ES-2](#) through [Table ES-7](#) summarizes the impacts for each definitive proposal by resource or impact area and the mitigation measures developed by the Army and Air Force to avoid, reduce, or provide management actions to mitigate significant adverse impacts. In cases where a resource or impact area is not affected by the proposal, “No Effect” is stated in the table.

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
<p>Airspace Management and Use</p>	<p>The annual number of aircraft sortie-operations would not increase significantly above baseline levels for both MFEs and other routine training. This baseline is inclusive of up to six annual MFEs, routine training operations, and the recent basing of six additional F-22s concurrent with the drawdown of F-15 aircraft at JBER.</p> <p>With the expanded Fox 3 MOA being closer to JBER, it is estimated that about half of the current Stony MOA fighter sorties would be conducted in the Fox 3 MOA/ATCAA if this proposal is implemented.</p> <p>With no significant increase in representative operational levels in this airspace, the higher density MFE aircraft sorties would be dispersed over a greater area on a daily basis than what currently occurs.</p> <p>The extent of airspace impacts would depend on the daily use of the expanded Fox 3 and new Paxon MOAs. (See Table 2-2.)</p> <p>May have moderate to significant impacts on airway IFR traffic and/or the airspace used by Anchorage ARTCC and/or Fairbanks TRACON. The FAA has expressed concerns that the Paxon MOA, when active, would result in the closure of three airways (V481, V515, and V444) forcing small or low flying aircraft to fly VFR between Gulkana/Northway to Delta Junction/Fairbanks.</p> <p>May have minimal to moderate impacts on jet/RNAV routes.</p>	<p>Impacts are the same as Alternative A, with the following exceptions:</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p> <p>The federal airways to the west and south of the existing/proposed Fox 3 boundaries should be sufficiently distant and separated from those airways so as to have minimal effects on their use. The more northerly proposed boundary should also not have impacts on the terminal airspace used by the FAA to separate and sequence airport air traffic through this area.</p> <p>The adjusted Fox 3 MOA boundary proposed for this alternative is sufficiently distant from the jet routes in Alternative A. This alternative would have minimal impacts on the jet/RNAV route structure in this region.</p> <p>The southern boundary of this proposed MOA would be more distant from those areas between Glennallen and Anchorage where much of the VFR traffic typically operates and would be unaffected by this alternative.</p> <p>This alternative would be more distant from public airports and private airfields that would be potentially affected by the Alternative A.</p>	<p>This alternative proposes no changes to the current boundaries and altitudes of the existing Fox 3 MOA.</p> <p>As no significant increases in the current military flight operations are projected for the future, the No Action Alternative would not affect the current military and civil aviation airspace uses within the region and would remain as under current conditions.</p>

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>The potential for interactions between military and VFR aircraft would depend on the daily densities, time frames, altitudes, and locations of both the military and VFR aircraft operations.</p> <p>Expanding the airspace for this proposal with much lower altitudes would require increased vigilance by both military and civilian pilots to maintain continued awareness of each other's presence while sharing this MOA airspace when it is in use.</p>		
Noise	<p>Subsonic aircraft noise levels beneath the Paxon MOA/ATCAA would increase from 37 to 54 dB L_{dnmr}, which is below levels of concern established by EPA for any land use.</p> <p>Decreasing altitudes would result in increased individual overflight noise events.</p> <p>Increases in noise levels in areas not currently overlain by MOAs would be greater than 10 dB and would be expected to be easily noticeable, because the ambient noise level in the ROI is low.</p> <p>The average number of sonic booms per day near the center of the Fox 3 MOA/ATCAA airspace would increase by less than one per day from 4.6 per day to 5.2.</p> <p>The intensity of the proposed noise levels does not exceed widely accepted impact thresholds, below which significant noise impacts do not typically occur. The context and degree of change are such that the change would be easily noticed and be expected to be considered significant by a substantial</p>	<p>The area of potential impact would be reduced by approximately 1.16 million acres.</p> <p>Beneath Fox 3 MOA/ATCAA, subsonic noise levels would increase from 39 to 50 dB L_{dnmr}.</p> <p>Noise levels beneath Paxon MOA/ATCAA would increase from 37 to 54 dB L_{dnmr}.</p> <p>Increases in supersonic noise levels would be the same as for Alternative A.</p>	<p>Under the No Action Alternative, there would be no change to existing airspace structure or existing baseline training operations. No change in noise levels would occur, and they would remain as under current existing conditions.</p>

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>percentage of the affected population.</p> <p>The risk of hearing loss associated with proposed training operations would be negligible.</p>		
Flight Safety	<p>MFES and routine training would only be conducted at the lower altitudes in the Fox 3 MOA; they would be limited to 14,000 feet MSL and above in the proposed Paxon MOA.</p> <p>The potential for aircraft mishaps under this alternative would be low to moderate. The number of flying days/hours by both MFE and routine training activities are not projected to increase significantly over current levels.</p> <p>The probability of an aircraft crash into a populated area is low, given the very low population density in the proposed airspace.</p> <p>The potential for near misses or midair collisions between VFR aircraft and low-altitude, high-speed military aircraft would be moderate to significant.</p> <p>No midair collisions and few reported near misses have occurred within the existing JPARC airspace.</p> <p>The potential for bird/wildlife-aircraft strikes would be low to moderate and the existing Air Force BASH programs and procedures would include consideration of additional means for monitoring and reacting to heightened risks of bird strikes.</p>	<p>The potential for aircraft mishaps and bird/wildlife-aircraft strikes would be generally the same as discussed for Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>The No Action Alternative would involve continuation of those plans, procedures, and processes currently used for minimizing flight safety risks for all flight activities within the existing airspace.</p>

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
Ground Safety	Significant impact potential caused by the use of chaff and flare during flight training activities is considered to be low.	Same as Alternative A. The area of potential impact would be reduced by approximately 1.16 million acres.	The No Action Alternative would involve continuation of those plans, procedures, and processes currently used for minimizing ground safety risks for all flight activities within the existing airspace.
Air Quality	<p>The use of chaff would not result in significant air quality impacts.</p> <p>Criteria pollutant emissions resulting from flight operations would not exceed applicable PSD significance thresholds of 250 tons per year, resulting in less-than-significant adverse air quality impacts (See Table 3-8.)</p> <p>Given that the project region is in attainment of all NAAQS, a conformity determination is not necessary.</p> <p>Significant impacts on public health from HAPs emitted in association with aircraft operations would not occur.</p> <p>Significant impacts to Denali National Park would not occur.</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at the Fox 3 and Stony MOAs and would not result in additional air quality impacts.
Physical Resources	No Effect		
Water Resources	No Effect		
Hazardous Materials and Waste	<p>There would not be an increase in chaff and flare use within the overall airspace and would be redistributed over a larger expanse of airspace.</p> <p>The use of temporary dry targets for practice bombing without the actual release of ordnance would not result in significant adverse impacts.</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	Under the No Action Alternative, there would be no addition to the current Fox 3 MOA configuration and no new Paxon MOA. Therefore, hazardous materials-related impacts would be the same as those occurring under existing conditions; no additional impacts would occur.

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
Biological Resources	<p>Wildlife species would be exposed to overflight by military aircraft flying as low as 500 feet AGL, potentially causing altered behavior or metabolic effects.</p> <p>Wildlife responses diminish with increasing altitude of overflight or increasing slant distance.</p> <p>Reported wildlife responses to overflight are largely behavioral and short-term. Some short-term physiological changes (e.g., increased heart rate) have also been measured.</p> <p>Studies of waterfowl, songbirds and raptors, including bald and golden eagles, vary in their responses to military jet overflight, but documented responses have been limited to short-term behavioral responses and no effects that would be measurable at a population level have been documented.</p> <p>Fish in their native habitat would not be affected at the sound levels associated with military aircraft overflight as low as 500 feet AGL.</p> <p>Potentially sensitive areas such as the Gulkana hatchery, which is the largest sockeye salmon hatchery in the world (PWSAC 2012), could be affected by overflight noise, especially during the incubation period when the eggs are susceptible to any type of noise or shock.</p> <p>For wildlife not previously exposed to sonic booms some short-term behavioral responses may be observed but would not result in any population-level effects.</p> <p>Chaff and flare use would not impact wildlife</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>Under the No Action Alternative, the horizontal and vertical boundaries of the existing Fox 3 MOA would remain the same and training would be expected to continue as permitted within the existing MOA. Wildlife resources would remain as they currently exist.</p>

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	resources to any significant degree.		
Cultural Resources	<p>As with previous analyses for existing Alaska MOAs (Air Force 1997-1), no significant impacts are anticipated to cultural resources from the expansion of current Fox 3 MOA boundaries, the addition of a new MOA, and their use for flight training.</p> <p>Compliance with all requirements for Tribal consultation has been completed. No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed expansion of Fox 3 MOA boundaries and the creation of the new Paxon MOA.</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>Under the No Action Alternative there would be no changes to the existing Fox 3 MOA and no new Paxon MOA. Existing use of the MOA would continue under this alternative, and traditional cultural resources would continue to be managed in compliance with Federal law and Air Force regulations.</p>
Land Use	<p>This proposal alternative would have no impact on land status or ownership.</p> <p>Subsonic noise levels in the underlying areas would increase substantially by about 17 dB under the new Paxon MOA and by about 10 dB under existing Fox 3 and the Fox 3 expansion area. However, the highest projected level under the new Paxon MOA, 54 dB L_{dnmr}, is below levels of concern established by EPA for any land use.</p> <p>Overall, changes to quiet settings could constitute an effect on valued natural and pristine areas in the region, but would not be expected to change the land use of the area but could be annoying to individuals who experience a startling event.</p> <p>Minimal impact on land use from chaff and flare use is expected.</p> <p>Ground access and travel is not affected by</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>There would be no changes to the current Fox 3 MOA configuration and altitudes or proposed addition of the Paxon MOA under the No Action Alternative. Therefore, no additional impacts on land use, public access, or recreation would occur.</p>

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>this proposal. Indirect effects of changes in civilian air access could affect access to specific communities and areas and associated uses and activities.</p> <p>No direct spatial or temporal impacts on availability of recreational opportunities would occur under this alternative.</p> <p>Indirect effects of changes in civilian air access would affect spatial and temporal availability to specific areas, and associated uses and activities.</p>		
Infrastructure & Transportation	No Effect		
Socioeconomics	<p>The major concerns for socioeconomic resources associated with the proposed action, as identified by scoping and draft EIS public review comments, are potential impacts to property values and commercial and general aviation.</p> <p>Impacts on key industries such as energy development and mining are expected to be low.</p> <p>Potential civil aviation impacts may include significantly increased flight distances and increased flight time when the airspace is active and either pilots elect not to transit the MOAs, or pilots flying to and from private airports or airfields are directed by ATC to divert their flight routes to avoid the active airspace and military activities. These potential aviation impacts would result in economic impacts due to additional operating</p>	<p>The area of potential impact would be reduced by approximately 1.16 million acres.</p> <p>Alternative E avoids the area near Lake Louise and there are fewer persons identified overall under the airspace and thus fewer persons who could be potentially impacted under this alternative.</p> <p>Commercial and general aviation would remain similar to those as described under Alternative A but at a reduced amount of affected airspace, as noted above.</p>	<p>Under the No Action Alternative, no new airspace would be created and no expansion to the existing Fox 3 MOA would be created. Existing activities in the Fox 3 MOA would continue under the current procedures and guidelines. Therefore, no changes to socioeconomic resources from current existing conditions are expected.</p>

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>costs (primarily related to increased fuel use) associated with avoiding active airspace, and the costs of any expended efforts in tracking the airspace status through available advisory services.</p> <p>Under Alternative A, there are approximately 206 persons in the census block that has been defined under the restricted airspace. The low population density under the proposed low-level airspace makes it highly unlikely that noise from flight activity would have significant social or economic impacts on the region.</p>		
Subsistence	<p>The expansion of the Fox 3 MOAs and the establishment of the Paxon MOA would not restrict ground access to traditional use areas or hunting locations beneath the new airspace.</p> <p>Subsistence users would have the same access and availability to subsistence resources from the ground as under current conditions.</p> <p>The new and expanded airspace, however, may result in a restriction of access by aircraft to areas or landing fields below or in the vicinity of the airspace. Aircraft are often used in the subsistence harvests, particularly for times of year in which traditional use areas are not accessible by ground vehicles.</p> <p>Wildlife surveys are factored into the impact assessment, as they are conducted by aircraft to gauge populations and health, information that is then taken into consideration when the ADFG determines subsistence priorities and</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>Under the No Action Alternative, flight training would continue in the existing Fox 3 MOA with no expansions or new airspace being created. Civil aviation would be permitted under the same guidelines described in Section 3.1.1, and wildlife/vegetation species would be affected by the conditions described in Section 3.1.8. Therefore, subsistence resources and access to those resources would be the same as described in Section 3.1.13.</p>

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>the amount of takes permitted.</p> <p>Noise and residual materials from chaff and flares also have the potential to affect the wildlife and vegetation resources harvested by subsistence users but not to a significant adverse degree.</p>		
Environmental Justice	<p>Impacts from airspace management, noise, flight safety, socioeconomics, and subsistence were assessed for environmental justice in accordance with EO 12898. It was determined they would not create disproportionate adverse effects on minority and low-income populations or children.</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>There would be no additional disproportionately high and adverse effects on minority and low-income populations or children from the No Action Alternative. The Fox 3 MOA would remain as currently configured.</p>
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> <p>• Special Use Airspace Information System (Airspace Management; Safety-Flight; Land Use-Access) Continue SUAIS in all areas where radio coverage exists; this includes a majority of the area beneath the proposed Fox 3 and Paxon MOAs. The SUAIS Letter of Agreement with the FAA will be updated to include current radio sites and any new MOAs to be covered by the system. The effectiveness of this mitigation in maintaining a safe, usable airspace can be seen in today’s northern MOAs, which have minimum altitudes even lower than proposed here. The Air Force safely shares large expanses of airspace with civilian aviation utilizing the communication network known as SUAIS. Proposed new, low MOAs already have large areas of SUAIS coverage that would enable safe, simultaneous use of these new airspaces by civil and military aircraft.</p> <p>• Eagle and Migratory Bird Avoidance (Biological Resources) Limit minimum altitude to 1,000 feet AGL in the new Fox 3 and Paxon MOAs from March 15 to September 30 (nesting season) to comply with the Bald and Golden Eagle Protection Act. Subject to available funding, the Air Force may coordinate with USFWS to establish habitat models and/or conduct bald and golden eagle nest surveys to establish low flying (500 feet AGL) areas outside of eagle habitat during the nesting season (March 15 to September 30).</p> <p>• Wildlife Avoidance (Biological Resources) Modify existing Letter of Agreement with ADFG to maintain avoidance areas over caribou and Dall sheep populations under the new MOAs during critical lifecycle periods. Coordination with wildlife agencies will continue to determine specifics, including seasons and minimum overflight altitudes; location of herds is monitored/reported by ADFG.</p> <p>• VFR Flight Corridors (Airspace management; Safety-Flight; Biological Resources; Land Use-Management, Access, Recreation; Socioeconomics; Subsistence) Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new</p> 			

Table ES-2. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.</p> <ul style="list-style-type: none"> <p>National Wild and Scenic Rivers Protection (Biological Resources; Land Use-Management, Recreation) For the period of May 15 to September 30, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-nautical mile buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake).</p> <p>Concentrated Activity Areas (Land Use-Management, Recreation; Socioeconomics) Comply with flight avoidance areas established by the 11th Air Force Airspace and Range Team and listed in the 11th Air Force Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th Air Force Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist).</p> 		

Key: ADFG=Alaska Department of Fish and Game; AGL=above ground level; ARTCC=Air Route Traffic Control Center; ATC=Air Traffic Control; ATCAA=Air Traffic Control Assigned Airspace; BASH=bird/wildlife-aircraft strike hazard; dB=decibel; EIS=environmental impact statement; EO=Executive Order; EPA=U.S. Environmental Protection Agency; FAA=Federal Aviation Administration; HAPs=hazardous air pollutant; IFR=Instrument Flight Rules; JBER=Joint Base Elmendorf-Richardson; combination of Elmendorf AFB and Fort Richardson; L_{dnmr}=onset rate-adjusted day-night average sound level; MFEs=major flying exercise; MOA=Military Operations Area; MSL=mean sea level; NAAQS=National Ambient Air Quality Standards; PSD=prevention of significant deterioration; PWSAC=; RNAV=Area Navigation; ROI=region of influence; SUAIS=Special Use Airspace Information Service; TRACON=Terminal Radar Approach Control; VFR=Visual Flight Rules.

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
<p>Airspace Management and Use</p>	<p>Use of R-2202B/C/D is not projected to increase significantly above current representative levels under this proposal since live ordnance deliveries would be conducted by those fighter aircraft types currently conducting other ordnance deliveries on the Oklahoma Impact Area.</p> <p>The proposed expansion of this restricted area would only be activated as needed.</p>	<p>Alternative B contains all of the elements of Alternative A but would also include establishing a new restricted area to allow realistic munitions drops in both the Oklahoma and Blair Lakes Impact Areas. Only inert bombs would be dropped at Blair Lakes Impact Area under RLOD.</p> <p>When activated, this airspace would</p>	<p>The No Action Alternative would not result in any change from existing conditions in the military and civil uses of this airspace environment.</p>

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>The scheduled and real-time status of this restricted airspace would be available on the SUAIS and other information sources.</p> <p>The extent to which this Alternative may impact civil aviation airspace use in the region of the expanded R-2202 would be minimal.</p> <p>The area proposed for the R-2202 expansion would have no direct impacts on VFR flyways.</p> <p>No public airports or private airfields are located within the immediate area of the proposed R-2202 expansion and others are sufficiently distant from this proposal so as not to be directly impacted.</p>	<p>restrict other uses of the Eielson MOA not associated with the live ordnance delivery missions. The planned use of this airspace would require coordination among the other using agencies to schedule and prioritize their respective mission requirements for this SUA.</p> <p>Restricted airspace linking the existing restricted areas would not permit civil aviation use of this airspace when activated for live ordnance deliveries.</p> <p>No public airports or private airfields are located within the immediate area of the proposed R-2202 expansion and others are sufficiently distant from this proposal so as not to be directly impacted.</p>	
<p>Noise</p>	<p>The number of sortie-operations conducted in R-2202 would not be expected to change, and aircraft noise levels would remain approximately the same as under baseline conditions.</p> <p>Sonic booms generated at these altitudes generally do not reach the ground due to atmospheric refraction and when they do intersect the ground are attenuated by the long distances travelled.</p> <p>The number of live GBU-32 (1,000-pound-class-bombs) dropped per year would be expected to increase from 70 to 200 while the number of SDBs dropped annually would remain the same as under baseline conditions.</p> <p>Noise levels exceeding 62 dB CDNL would not extend beyond the boundaries of DoD-owned</p>	<p>Inert munitions generate noise on impact that is noticeable only in the immediate vicinity of the impact location.</p> <p>Noise impacts in the Blair Lakes Impact Area under Alternative B would be minimal, and munitions usage and noise impacts in the Oklahoma Impact Area would be the same as under Alternative A.</p> <p>Impacts do not exceed the significance thresholds established for this action.</p>	<p>Under the No Action Alternative, restricted area airspace extents would remain as they are currently, and no changes to munitions usage would occur. There would be no change from existing conditions for noise under the No Action Alternative.</p>

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	land. The proposed incremental increase in munitions use at the geographically remote Oklahoma Impact Area would not result in noise impacts that would exceed significance thresholds established for this action.		
Flight Safety	The overall potential for any flight safety risks under this alternative would be low to moderate. Aircraft sortie-operations and the overall number of flying hours within the existing and proposed airspace would not increase significantly above current representative levels, therefore, the potential risk for increased aircraft mishaps, bird-aircraft strikes or near misses/midair collisions should also not increase.	The overall potential for any flight safety risks under this alternative would be low to moderate. The probability of any flight safety risks within this airspace, when active, would be relatively low, as discussed for Alternative A.	The No Action Alternative would involve maintaining the current use of this airspace as well as those plans, procedures, and processes in place for minimizing flight safety risks within the existing airspace.
Ground Safety	Existing procedures for range safety and control would continue to be implemented for proposed training activities in the Oklahoma Impact Area, as well as within land areas underlying the proposed expanded R-2202 airspace. For areas outside of the military land boundary, the Air Force would develop a Range Safety and Access Plan following the ROD for managing and ensuring public safety on non-military land. As required, training areas would be cleared of UXO or munitions debris to reduce related hazards and provide a safe and constructive training environment for all training units. Any cleared areas that become contaminated during live-fire exercises/training would again	Existing procedures for range safety and control, as described under Alternative A, would be implemented for proposed activities in the existing targets at the Oklahoma and Blair Lakes Impact Areas, as well as within land areas underlying the proposed expanded R-2211 and R-2202 airspaces. Existing procedures for UXO and munitions safety, as described under Alternative A, would be implemented for the proposed activities. There are no aspects of Alternative B associated with public access control not previously discussed under Alternative A. Consequently, significant impacts are not expected to occur.	No change in ground operations would occur under the No Action Alternative; therefore, there would be no additional changes to existing public health and safety conditions.

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>be cleared when the exercise is completed.</p> <p>Current procedures designed to limit unauthorized public access would continue when ordnance delivery exercises are taking place. These procedures include marking prohibited areas with placards, blockades, verbal warnings, or red flags as appropriate.</p> <p>The Integrated Wildland Fire Management Plan would be updated to address training activities under Alternative A.</p> <p>Implementation of the measures listed above would minimize the potential for significant adverse impacts on the military and the general public.</p>	<p>All fire management and response practices currently employed or proposed under Alternative A would be implemented. Consequently, significant impacts are not expected to occur.</p>	
Air Quality	<p>No changes will occur to aircraft operations in the affected area under Alternative A of this action. Thus, no analysis was performed on the air quality effects of aircraft operations in the region.</p> <p>Alternative A for the RLOD would result in an increase in GBU-32 expenditures in R-2202, which would result in an increase in criteria pollutant and HAP emissions. The low level of criteria pollutant emissions that would result provides a good indication that the HAP emissions would be minimal.</p> <p>Increases in criteria pollutant emissions from Alternative A would not exceed applicable PSD significance thresholds of 250 tons per year. Therefore, the criteria pollutant emissions would result in less-than-significant air quality impacts.</p> <p>Impacts on air quality-related values at Denali National Park would be expected to be</p>	<p>Same as Alternative A.</p>	<p>Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at R-2202 and R-2211. Therefore, the No Action Alternative would not result in any new air quality changes from existing conditions.</p>

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
Physical Resources	<p>negligible.</p> <p>The proposed additional use of ordnance represents a fraction of total yearly munitions use in the Oklahoma Impact Area, such that no adverse soil erosion impacts would occur.</p> <p>The proposed new targets in TAs 544 and 533 would be classified as temporary impact areas. Creation of new targets could result in short- and long-term soil erosion, as well as degradation of permafrost, including thermokarst features; therefore, there is potential for significant adverse impacts to occur without mitigations to avoid or reduce impacts, or the addition of BMPs and SOPs for these specific areas.</p>	<p>Impacts would be similar to those described for Alternative A.</p>	<p>Under the No Action Alternative, there would be no change to current activities at Blair Lakes Impact Area or the Oklahoma Impact Area and conditions would be the same as existing baseline conditions.</p>
Water Resources	<p>Impacts would be limited to the existing target arrays that currently undergo live-fire practice in the Oklahoma Impact Area.</p> <p>Water quality could be impacted by the metals and explosive fillers used in the ordnance. Iron, manganese, copper, molybdenum, lead, nickel and zinc are found in shell and various projectile components of the GBU-32 and SDBs.</p> <p>The increase in ordnance use is not expected to raise levels of metal concentrations to levels of concern; therefore, water quality impacts from metals deposited in the environment by exploded ordnance would be potentially adverse but not significant.</p> <p>The potential for net loss in wetland acreage would be minimal and potential impacts to wetlands would be adverse but not significant.</p> <p>Impacts on surface water and groundwater downstream of the proposed target arrays for</p>	<p>Impacts would be similar to those described for Alternative A, including the addition of the Blair Lakes Impact Area which is designated as a nondudded range where only inert ordnance would be used.</p>	<p>There would be no change to water quality in association with munitions use under current existing conditions, and no additional changes would occur in association with munitions use.</p>

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>inert ordnance delivery in TAs 533 and 544 would be minimal and not significant.</p> <p>The inert ordnance would not create significant craters; therefore impacts to wetlands would be minimal and not significant.</p>		
Hazardous Materials and Waste	<p>No significant adverse general hazardous materials-related operational impacts would occur in association with this alternative, as current and future Army regulations and practices would be undertaken to meet compliance requirements.</p> <p>Low levels of zinc, copper, lead, and antimony were detected within impact areas and target berms where munitions were used. The metal concentrations were above the background but no samples in DTA had values approaching levels of concern (USACE 2004-1).</p> <p>The Oklahoma Impact Area would be managed in accordance with current Federal, State of Alaska, Air Force, and Army regulations for the management, safe handling, and disposal of hazardous waste and materials associated with live and inert ordnance and UXO, as the result of aerial bombing exercises at each impact area. Therefore, Alternative A would result in the potential for adverse but not significant impacts.</p> <p>The proposed new targets in TAs 544 and 533 would be classified as temporary impact areas. There is no potential for adverse munitions-related hazardous materials impacts, as only inert ordnance delivery would be conducted.</p>	<p>Impacts would be similar to those described for Alternative A, including the addition of the Blair Lakes Impact Area which is designated as a nondudded range where only inert ordnance would be used.</p>	<p>Under the No Action Alternative, there would be no expansion of the footprint, associated WDZ, and hazard areas for ordnance delivery or the use of ordnance requiring an expanded footprint. Therefore, no change or additional impacts to existing conditions would occur for hazardous materials and waste.</p>
Biological Resources	<p>The overflight and weapons release activities allowed by the proposed airspace</p>	<p>Same as Alternative A.</p>	<p>No changes to existing biological resource conditions are expected</p>

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (*Continued*)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>modifications would not have substantial impacts on vegetation or wildlife.</p> <p>Under Alternative A, which includes the proposed establishment of new target areas outside the existing impact areas as part of the north-south ordnance delivery run-in headings, some potential exists for biological impacts at these new target sites. The target sites would be approximately 1 to 2 acres in extent and would be located within existing ordnance impact areas in DTA and TFTA. For north-south run-in headings, however, targets would be located within DTA-West, but outside of existing ordnance impact areas. Only inert ordnance would be used at these targets. The siting and environmental review process would employ siting criteria to minimize impacts on wildlife and vegetation.</p>		<p>from implementation of the No Action Alternative.</p>
Cultural Resources	<p>Compliance with all requirements for Tribal consultation has been completed. No significant impacts are anticipated to cultural resources, traditional resources, or Alaska Native activities from the expansion of R-2202.</p> <p>The establishment of new target areas in TAs 533 and 544 is not anticipated to have impacts on cultural resources, as archaeological survey of the areas located no archaeological resources.</p> <p>In compliance with Section 106 of the NHPA, ALCOM, on behalf of the Air Force, completed consultation with the Alaska SHPO and determined that no historic properties will be affected by implementation of the proposed action.</p>	<p>No significant impacts are anticipated to cultural resources, traditional resources, or Alaska Native activities from the creation of a new restricted area linking R-2211 and R-2202 and its training use.</p> <p>The existing target array in the Oklahoma and the Blair Lakes Impact Areas would be used under Alternative B, and no significant impacts on cultural resources are anticipated.</p>	<p>Under the No Action Alternative there would be no expansion of the footprint, associated WDZ, and hazard areas for ordnance delivery or the use of ordnance requiring an expanded footprint. Existing use of the restricted areas would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.</p>

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
<p>Land Use</p>	<p>An increase of about 550 acres would be required for the proposed R-2202 restricted area expansion would affect Alaska State land only.</p> <p>Impulse noise levels of 62 dB CDNL would remain within the boundary of the existing Oklahoma Impact Area on DTA-West. These noise levels are compatible with military training uses on military land.</p> <p>Areas exposed to peak noise levels exceeding 115 dB PK 15(met) extend beyond military land to the northeast of DTA-West. However, peak noise levels of 115 dB PK 15(met) already affect this area on a regular basis, and the change is relatively minor (less than 4 percent increase in non-military land), resulting in no adverse impact.</p> <p>Only minor impacts on non-military uses other than recreation on DTA-West would result.</p> <p>No public use would be permitted within WDZs when mission activities occur. Under Alternative A this would include about 163,630 acres of non-military land underlying the extended R-2202 airspace beyond the boundary of military land.</p> <p>Restricted access may cause an adverse impact on existing leases, permits, and claims on State land, limited in extent to the few entities that hold these property interests.</p> <p>A Range Safety and Management Plan detailing access control measures and roles and responsibilities would be prepared by the Air Force for ADNR approval following the State Special Use Designation for the R 2202 expansion.</p>	<p>Impacts on land use, public access, and recreation would be similar under Alternative B as those described for Alternative A.</p> <p>An increase of about 42,420 acres would be required for the proposed restricted area expansion that would link R-2202 and R-2211 to include the addition of the Blair Lakes Impact Area.</p> <p>Reduced access to land under the WDZ during aerial ordnance delivery exercises would result in a significant adverse impact to surface access in the local area.</p> <p>Overall, RLOD Alternative B would have potentially significant adverse impacts on land use and real estate interests, public access, and recreation in the directly and indirectly affected areas. Selective mitigations could reduce these impacts to less than significant but would require more consultation and coordination with ADNR and their Special Use Designation application and public review process for public access control and limitation.</p>	<p>Under the No Action Alternative, no expansion of SDZs or hazardous areas would result. There would be no change in munitions use or access to military or non-military areas. Therefore, no changes or additional impacts to existing land use, access or recreation conditions would occur.</p>

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (*Continued*)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	Overall, implementation of RLOD Alternative A would have potentially significant adverse impacts on land use, recreation, and access on State lands, but coordination with ADNR and selected mitigations could reduce these to moderate levels.		
Infrastructure & Transportation	No adverse impacts to water, sewer or natural gas or transmission lines are anticipated. Although primary access arteries would not be adversely impacted, and rail access would see a net positive impact, transportation access would continue to remain an issue within the DTA and TFTA.	Under Alternative B, impacts discussed are identical to those presented under Alternative A, with the exception that the proposed 20-year vision for USARAK calls for improved access into TFTA (USARAK 2009-1).	No changes to existing infrastructure or transportation system conditions would occur under the No Action Alternative.
Socioeconomics	Existing commercial and residential uses in the area include: mining operations, recreation, subsistence, and aviation. Any access restrictions that would interrupt participation in these activities could result in additional costs from delays or rerouting, which, based on concerns expressed during the public scoping period and draft EIS public review, are anticipated to be significant without the implementation of mitigation measures. These would include such measures as notifying the public of the time and dates of ground access restrictions in advance and restricting military training during the most popular months (e.g., September) for recreation and subsistence harvesting, could lessen the likelihood of potential economic impacts.	Similar to Alternative A, potential economic impacts would be anticipated from a restriction in commercial and private access under Alternative B. Under Alternative B, the expanded restricted area would be significantly larger (e.g., 550 acres for Alternative A versus 42,420 acres for Alternative B) and thus, is anticipated to result in greater impacts than under Alternative A.	Under the No Action Alternative, there would be no expansion of the footprint, associated WDZ, and hazard areas for ordnance delivery, and no use of such ordnance as to require an expanded footprint. Therefore, no changes or additional impacts to existing socioeconomic resource conditions would occur under this alternative.
Subsistence	The RLOD proposed action would restrict ground access to areas currently available for subsistence harvesting by rural Alaska residents under Federal regulations.	Under Alternative B, the expanded restricted area would be significantly larger (e.g., 550 acres for Alternative A versus 42,420 acres for Alternative B) and thus, are anticipated to result in	Under the No Action Alternative, no additional airspace or expansion of SDZs is proposed. Individuals participating in subsistence in the nearby communities of Healy Lake,

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>Potential impacts on civil aviation and airports in the vicinity of the proposed RLOD are a possibility.</p> <p>With measures adopted to avoid or reduce potential impacts from restricted ground access or restricted airspace, significant adverse impacts to subsistence resources as defined by the ANILCA would not occur.</p>	<p>greater impacts than under Alternative A.</p> <p>With measures adopted to avoid or reduce potential impacts from restricted ground access or restricted airspace, significant adverse impacts to subsistence resources as defined by the ANILCA would not occur.</p>	<p>Dot Lake, and Dry Creek would be able to access the areas in order to harvest subsistence resources as it is currently practiced.</p>
Environmental Justice	<p>Significant land use or socioeconomic impacts would not create disproportionately high and adverse environmental or health effects on minority and low-income populations or children.</p>	<p>Same as Alternative A.</p>	<p>There would be no additional disproportionately high and adverse environmental and health effects on minority and low-income populations or children from the No Action Alternative, because restricted airspace would remain as currently configured and no additional airspace or expansion of SDZs or other hazard zones is proposed.</p>
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> <p>• State Land/Leasehold Avoidance (Land Use-Management, Access, Recreation; Socioeconomics)</p> <p>Comply with ADNR comments to avoid leasehold properties in the north and south corners of the proposed restricted area by adjusting the borders of the Alternative A airspace.</p> <p>• ADNR Compliance Items (Safety-Ground; Land Use-Management)</p> <p>Air Force will provide support to ADNR throughout the Special Use Designation process. The Air Force will develop a CONOPS and an Access and Safety Plan for the exclusive use of State land to support RLOD. The Special Use Designation process will identify areas and dates of closure and will have to indicate which activities are affected. The Access Plan will provide the maximum public use to the ground evacuation areas, closing such areas for the minimum period of time necessary to conduct such operations. The Access Plan (updated annually) will identify areas and dates of closure and will indicate which activities are affected. It will describe roles and responsibilities for securing the area, ensuring it is evacuated, publishing and posting closure notices, signs, and other media to advertise and alert public of the hazards, times, and locations.</p> <p>• Continued compliance with Army regulations on R-2202 (Physical Resources; Water Resources)</p> <p>All applicable conservation, monitoring, and management procedures currently followed by USAG-FWA in the management of R-2202 will be applicable to the proposed action, including measures for the protection of soils and permafrost, including but not limited to, the Fort Wainwright INRMP and SWPPP and the monitoring guidelines of the ITAM Sustainable Range Awareness.</p> 			

Table ES-3. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Key: ADNR=Alaska Department of Natural Resources; ALCOM=Alaskan Command; ANILCA=Alaska National Interest Lands Conservation Act; BMPs=best management practice; CDNLC=C-weighted day-night average sound level; CONOPS=Concept of Operations; dB=decibel; dB PK 15(met)=single-event peak level exceeded by 15 percent of events; DoD=U.S. Department of Defense; DTA=Donnelly Training Area; GBU=Guided Bomb Unit; HAP=hazardous air pollutant; INRMP=Integrated Natural Resources Management Plan; ITAM=Integrated Training Area Management; MOA=Military Operations Area; NHPA=National Historic Preservation Act; NM=nautical mile; PSD=prevention of significant deterioration; RLOD=Realistic Live Ordnance Delivery; ROD=Record of Decision; SDB=Small Diameter Bomb; SHPO=State Historic Preservation Officer; SOPs=standard operating procedures; SUA=Special Use Airspace; SUAIS=Special Use Airspace Information Service; SWPPP=Storm Water Pollution Prevention Plan; TA=Training Area; TFTA=Tanana Flats Training Area; USACE=U.S. Army Corps of Engineers; USAG-FWA=U.S. Army Garrison Fort Wainwright, Alaska; UXO=unexploded ordnance; VFR=Visual Flight Rules; WZ=weapon danger zone.

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
<p>Airspace Management and Use</p>	<p>The military airspace for this proposal would be changed from a CFA to a restricted area.</p> <p>Aviation activities would increase slightly in the BAX restricted area above current levels, as it is estimated that approximately 70 percent of the USARAK helicopter operations currently conducted in R-2202 would be performed in the BAX restricted area. Air Force aircraft conduct a limited number of CAS missions throughout the year for Army ground-based activities in the BAX CFA and it is anticipated that such operations would occur in the future with establishment of a restricted area.</p> <p>For federal airways, this proposal may cause flight delays or require the FAA to route IFR air traffic around this active airspace.</p> <p>For jet/RNAV routes, air traffic operating along J167 above the higher altitude sector (FL180–220) of this proposed restricted area would not be affected by this proposal.</p> <p>This proposal to establish restricted airspace in an area that currently permits VFR air traffic access through the existing CFA may have moderate to significant impacts on the VFR aviation community without the implementation</p>	<p>As discussed for Alternative A, it is estimated that only the low altitudes (below 6,000 feet MSL) would be needed approximately 60 percent of the time with all three layers being used the other 40 percent.</p> <p>The potential impacts to federal airways, jet/RNAV routes, VFR air traffic, and local airports and airfields would be the similar to Alternative A.</p> <p>The existing flight safety procedures followed by the Army and Air Force for current flight training activities within this airspace would continue, as appropriate, to serve as the standard for minimizing impacts on other military and civil aviation airspace uses in the affected environment.</p> <p>Specific impacts or limitations the preferred airspace proposal may have on IFR and VFR air traffic would be examined in the FAA aeronautical study with subsequent consultations with USARAK and civil aviation concerns on those operational mitigations that may be needed to help minimize impacts.</p>	<p>The BAX CFA would continue to be used for current USARAK activities while allowing nonparticipating aircraft access through the existing active CFA in the BAX area.</p>

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>of appropriate mitigations, regarding VFR accessibility in this area.</p> <p>The Delta Junction public airport and the All West, Rocking T, Remington, and Wingsong Estates private airfields are located within 10-15 miles of the proposed restricted area. There would be no direct impacts on these airfields, except for the restrictions discussed for VFR air traffic operating between these locations and destinations south and east of this proposed restricted airspace.</p>		
Noise	<p>Noise levels exceeding 62 dB CDNL or 130 dB PK 15(met) would not extend beyond range boundaries.</p> <p>Aircraft operations in the BAX area may increase relative to baseline operations tempo, but time averaged noise levels would not be expected to exceed 65 dB L_{dnmr}. Supersonic flying operations would not be permitted in the BAX Restricted Area airspace.</p> <p>Noise impacts would not exceed the significance thresholds established for this action.</p>	Same as Alternative A.	Under the No Action Alternative, no changes to munitions usage or aircraft activity would occur. Noise levels would remain as they are under current existing conditions.
Flight Safety	<p>The majority of the flight activities to be conducted in this airspace would be USARAK helicopters operating to/from and within this proposed restricted area.</p> <p>The potential for aircraft mishaps, near misses/midair collisions, bird-aircraft strikes, and other flight safety risks would be minimal.</p> <p>Nonparticipating aircraft would not be permitted in this restricted airspace when active.</p> <p>Measures currently used by USARAK to maintain safe operating distances from ground</p>	Same as Alternative A.	The No Action Alternative would not result in any changes to the existing CFA airspace environment, flight conditions, and safety programs currently associated with this airspace use.

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>obstacles and other military and civil aircraft would continue to be used as a standard for ensuring flight safety is maintained for all concerned.</p> <p>The active status of this restricted area would be available through the SUAIS and other available advisory services.</p>		
Ground Safety	Significant impacts associated with range safety and control, UXO and munitions safety, public access control, or fire and emergency response for this alternative are not expected to occur.	Same as Alternative A.	No change in ground operations from existing conditions would occur under the No Action Alternative.
Air Quality	<p>The BAX area is located within the DTA, which is located in the Denali Borough and the Southeast Fairbanks Census Area, which are both in attainment of all NAAQS.</p> <p>The area proposed for the addition of the BAX airspace is adjacent to the DTA in Southeast Fairbanks Census Area and which is in attainment of all NAAQS.</p> <p>This alternative would not have any negative impacts on air quality or visibility in nearby Denali National Park.</p>	Same as Alternative A.	Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations undertaken in the BAX area.
Physical Resources	Given that the proposed action involves minimal to no disturbance of new or additional land surface, no adverse impacts on physical resources within the study area of this proposed action are expected to occur.	Same as Alternative A.	No change to existing ground operations would occur under the No Action Alternative.
Water Resources	<p>Four new firing points and thirteen new target points would be added within the restricted area as part of this proposal.</p> <p>Inert ordnance, without high explosives, would be used at the training areas. Therefore explosive residues would not create adverse impacts at the target points.</p>	Same as Alternative A.	Under the No Action Alternative the munitions usage at the existing target arrays and vehicle maneuvering would be the same as existing condition as described in the NEPA analysis in 2006 (USARAK 2006-1) and no additional impacts would occur.

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>The compound 2,4-DNT is a component of some munitions used for training in this area. It is a carcinogenic compound and potentially can contaminate groundwater. The State of Alaska clean up levels are 0.005 parts per million for 2,4-DNT to protect groundwater (Walsh et al. 2004). Therefore, over time 2,4-DNT concentrations could accumulate at the firing points and concentrations could potentially exceed soil clean-up levels. Therefore, there is a potential for adverse impacts to groundwater quality. With mitigation and management actions, the adverse impacts would be reduced to not significant.</p>		
<p>Hazardous Materials and Waste</p>	<p>The ground-disturbing impacts of munitions usage at the existing target arrays and areas of vehicle ground maneuvering were permitted and subject to NEPA analysis in 2006, in the <i>Final Environmental Impact Statement for the Construction and Operation of a Battle Area Complex and a Combined Arms Collective Training Facility within U.S. Army Training Lands in Alaska</i> (USARAK 2006-1).</p> <p>Therefore, no adverse impacts would occur related to hazardous materials and waste.</p>	<p>Same as Alternative A.</p>	<p>Under the No Action Alternative, there would be no expansion of the restricted area over the BAX in DTA-East. Therefore, no additional hazardous material-related impacts would occur.</p>
<p>Biological Resources</p>	<p>The vegetation classes present in DTA-East project area are widespread across the project region and are not unique or considered sensitive communities, and are not associated with endangered or threatened species. Therefore, no significant adverse effects to vegetation communities are expected.</p> <p>Because a variety of training already occurs within the BAX project area and a variety of wildlife species occur there, the resident and migratory species are exposed to, and likely</p>	<p>Same as Alternative A.</p>	<p>The current amount of ground disturbance (from training, vehicles and live fire) would be expected to continue, and wildlife using the area would be expected to remain active in occupied habitats. Localized vegetation impacts from training would continue.</p>

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>habituated to, the types of disturbances that result from these types of activities. Wildlife habitats present within the project area are not associated with sensitive, endangered, or threatened species and are generally widely available within the project region.</p> <p>Changes in the ordnance and aircraft use in the BAX project area may have adverse but not significant impacts to local vegetation and wildlife. Impacts would be further reduced given implementation of proposed and ongoing mitigation such as Special Interest Management Areas, maintaining dialogue with BLM and ADNR to adjust restrictions, and impact avoidance measures.</p>		
<p>Cultural Resources</p>	<p>Although 153 archaeological sites are located under the training airspace, no significant impacts are anticipated to cultural resources or Alaska Native tribes or other Tribal entities from the airspace reclassification and its training use. Flying operations are not conducted at a frequency sufficient to result in time-averaged noise levels exceeding 65 dB DNL. Noise levels generated by munitions firing exceeding 62 dB CDNL would not extend beyond range boundaries.</p> <p>Adverse effects are likely for the 14 known archaeological sites within the expanded footprint of the BAX, as well as any sites found during surveys of the previously unsurveyed areas bounded by the expanded BAX SDZ footprint. In compliance with Section 106 of the NHPA, the Army has completed consultation with the Alaska SHPO and executed a Programmatic Agreement.</p>	<p>Same as Alternative A.</p>	<p>Under the No Action Alternative there would be no expansion of the restricted area over the BAX in DTA-East and no expansion of the BAX SDZ footprint. Existing use of the restricted areas would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.</p>

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>The SHPO has concurred with the finding of no adverse effect, provided that a monitoring and data recovery program is implemented. Under the terms of the Programmatic Agreement, consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities will continue for the duration of the Programmatic Agreement.</p> <p>No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed new restricted area and ALCOM has complied with all requirements for Tribal consultation.</p>		
Land Use	<p>The primary land use on DTA-East is military training, and this would not change under the BAX proposal.</p> <p>Public uses taking place on DTA-East including: recreation, personal use and subsistence, hunting, gathering, trapping, and some timber harvesting would continue, but available time for access would become more limited.</p> <p>This proposal would also prevent use of portions of the Richardson Highway-Gerstle River Trail, the 33-Mile Loop Road, and the 12-Mile Crossing. Elimination of these access points would reduce the amount of recreation area available to the public within DTA-East.</p> <p>Noise contours show a slight increase in sound exposure and slight expansion of the area exposed to 62 dB CDNL and above. Noise exposure on areas outside the installation would remain well below 62 dB L_{dnmr}. No areas would experience incompatible averaged impulsive</p>	<p>This alternative would affect a larger portion of DTA-East, including TAs 501, 502, 503, 504, 505, 506, 507, 508, 510, 511, 512, 513, 514, and 515. The Richardson-Gerstle and 33-Mile Loop trails would be affected, as well as the trail network in TAs 512, 508, and 511.</p> <p>Other noted impacts are the same as Alternative A.</p>	<p>There would be no changes to the current project area under the No Action Alternative. Therefore, no additional impacts on land use, public access, or recreation would occur.</p>

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>noise levels.</p> <p>Under this proposal, civilian ground and air access would not be permitted within the project area when the BAX and restricted area are active with military training and exercises taking place. This would occur approximately between three and five days per week, depending on annual Army training schedules for training in this area. This would result in an adverse impact on the accessibility of trails and roads and to the use of areas served by those routes.</p> <p>Overall, both noise and access impacts of this proposal would have an adverse but less than significant impact on local recreation opportunities in the Delta Junction area. This impact is somewhat moderated considering a relatively small portion of local recreational activity uses in this area of DTA.</p>		
Infrastructure & Transportation	No Effect		
Socioeconomics	<p>Although there is no available data on the number of civilian general aviation flights that traverse the current BAX CFA, it is expected that the number of civilian flights traversing the area is low since there are no population centers in the BAX CFA. Potential impacts on civil aviation are not expected to adversely impact socioeconomic resources.</p> <p>Specific impacts or limitations this proposal may have on IFR and VFR air traffic would be examined in an FAA aeronautical study with subsequent consultation with USARAK and civil aviation concerns on those operational mitigations that may be needed to help</p>	Same as Alternative A.	Under the No Action Alternative, socioeconomic resources would remain as described under current existing conditions, and no additional impacts would occur.

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>minimize impacts. Civil general aviation contributes significantly to the local economy; mitigations identified in the FAA study that would minimize adverse impacts to civilian aviation could subsequently minimize adverse impacts to socioeconomic resources.</p> <p>Approximately 167 persons within the Southeast Fairbanks Census Area were identified under the proposed airspace. Noise levels exceeding 62 dB CDNL or 130 dB PK 15(met) would not extend beyond range boundaries into residential areas. Additionally, the area is currently exposed to low-level overflights and noise associated with military aircraft. These activities are not expected to adversely impact populations or socioeconomic resources.</p>		
Subsistence	<p>The area beneath the proposed restricted airspace is in the vicinity of two major highways and access to subsistence activities would not be heavily dependent on aircraft access. Potential impacts on civil aviation are not expected to adversely impact access to subsistence resources.</p> <p>The increase in military activities at the BAX may decrease the amount of time public access is permitted. The BAX area and the proposed restricted airspace would be active for a maximum of 238 days at all times of the year. For rural Alaska residents that regularly harvest subsistence resources within the public access areas of DTA (in which BAX is located), an increase in restrictions to public access could be an adverse impact. However, the nearby vicinity has large tracts of Federal land in which subsistence activities are permitted and do not</p>	Same as Alternative A.	Under the No Action Alternative, no restricted airspace would be established. Existing military activities would continue. Subsistence activities would remain as they are currently practiced.

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	have the same access restrictions as a military installation. No significant impacts to subsistence activities are expected as defined by ANILCA.		
Environmental Justice	<p>Impacts such as airspace management, noise, land use, and socioeconomics would be less than significant or mitigated to this level.</p> <p>Impacts from this alternative would not create disproportionately high and adverse environmental or health effects on minority or low-income populations or children.</p>	Same as Alternative A.	For the No Action Alternative, no restricted airspace and new target areas would be established and military activities would continue under existing conditions. There would be no additional disproportionately high and adverse environmental or health effects on minority and low-income populations or children.
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> <p>• FAA’s study (Airspace Management)</p> <p>Pending the FAA’s study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals.</p> <p>• Eagle and migratory birds (Biological Resources)</p> <p>Maintain consultation with USFWS with regard to compliance with Bald and Golden Eagle Protection Act and MBTA. As required, conduct bald and golden eagle nest surveys in other areas where airspace modification would occur over previously unsurveyed areas. Coordinate the results with USFWS.</p> <p>• Sensitive wildlife awareness training (Biological Resources)</p> <p>Continue pilot and soldier education for awareness of sensitive wildlife species habitats and seasonal behaviors utilizing GIS mapping and discuss procedures to reduce disturbances and to increase safety by reducing potential for aircraft strikes.</p> <p>• Monitor effects of military training on wildlife (Biological Resources)</p> <p>Continue to monitor effects of military training including overflights on select wildlife species (especially herd animals, waterfowl, and raptors) and fisheries during critical seasons such as breeding, young-rearing, and migration. Use knowledge to develop and implement strategies to minimize disturbance to priority wildlife in existing and new SUAs and restricted airspace. This would help natural resources and range managers to coordinate training schedules that minimize impacts on wildlife populations.</p> 			

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<ul style="list-style-type: none"> • Continue study of noise effects on wildlife (Biological Resources) Continue effort to conduct a detailed study to assess the impacts and effects of noise on wildlife, particularly key species such as caribou and bison, during critical life cycle seasons. Use information to include protection requirements within a noise management plan. • NHPA compliance (Cultural Resources) Mitigations for impacts to cultural resources are established through NHPA Section 106 consultation pursuant to 36 CFR 800. In compliance with Section 106 of the NHPA the Army has completed consultation with the Alaska SHPO and complied with all requirements for consultation with potentially affected Alaska Native Tribes, ANCSA corporations, and Tribal government entities to identify historic properties that may be affected, including TCPs, and develop management actions and mitigation measures to resolve any adverse effects, if required. It has been determined that significant adverse impacts to cultural resources and Alaska Native Tribes, ANCSA corporations, and Tribal government entities would not occur by the implementation of the BAX Restricted Area proposal. Mitigation measures include the amendment of the existing BAX Surface Danger Zone Programmatic Agreement to include the known and as yet undiscovered archaeological sites in the expanded BAX SDZ footprint. Specific Programmatic Agreement requirements are to survey new areas of the amended BAX SDZ within a period of five years from the amended agreement (9/9/12); add any sites that are discovered to the BAX SDZ monitoring plan; produce an annual report to the Alaska SHPO; update the Archaeological Resource Protection Act tri-fold handout and develop a placard describing cultural resources on the BAX SDZ that will be presented in the form of, at a minimum, one poster displayed at Range Control, and one interpretive panel placard to be displayed at an information kiosk located at the BAX range; and develop a cultural resource awareness PowerPoint presentation to be given to Soldiers and contractors to increase knowledge of cultural resource concerns and responsible actions, and knowledge of Alaska Native communities. All of the above mentioned requirements are either completed or in progress. Annual monitoring of archaeological sites within the BAX SDZ began in August of 2009 and will continue for 10 years from this date. In accordance with AR 200-1, all NHPA Section 106 consultation has been completed. In the event that previously unrecorded or unevaluated cultural resources are encountered, the Army would manage these resources in accordance with the NHPA and other Federal and State laws, Air Force, and DoD regulations and instructions, and DoD American Indian and Alaska Native Policy. • Munitions contamination issues (Hazardous Materials and Waste; Water Resources; Biological Resources) The Army may augment the effort for their existing program to identify possible munitions contamination at training areas on DTA-East. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams. • USARTRAK (Land Use-Access) The Army will update information and maps available to the public on the USARTRAK website to identify changes in public access restrictions for 		

Table ES-4. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>the expanded Army training activities within USAG-FWA training areas.</p> <ul style="list-style-type: none"> <p>Relationships with regulatory agencies (Biological Resources; Land Use-Management, Access, Recreation)</p> <p>The military will maintain an open dialogue with ADNR, BLM, ADFG and USFWS to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the ROD for this EIS.</p> <p>Trespass control (Safety-Ground; Land Use)</p> <p>The Army will expand enforcement to control trespass in DTA-East for the expanded operations.</p> <p>Bird awareness programs (Safety-Flight)</p> <p>Maintain respective bird awareness programs to address potential bird and wildlife hazards that may exist.</p> <p>Fire management (Safety-Ground)</p> <p>Continue fire management mitigations in accordance with current Army and USARAK regulations on the BAX.</p> <p>Air traffic situational awareness (Airspace Management; Socioeconomics)</p> <p>Pursue manning and funding for any enhancements required to expand situational awareness for air traffic in and around training areas for general and military aviation. Complete an internal study to identify coverage gaps in new SUAs and restricted airspace. One possible alternative is the establishment of a U.S. Army Airspace Information Center.</p> <p>Subsistence use consultation (Subsistence)</p> <p>Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA.</p> 		

Key: 2,4-DNT=2,4 dinitrotoulene; ADFG=Alaska Department of Fish and Game; ADNR=Alaska Department of Natural Resources; AFI=Air Force Instruction; ANCSA=Alaska Native Claims Settlement Act; ANILCA=Alaska National Interest Lands Conservation Act; BAX=Battle Area Complex; BLM=Bureau of Land Management; CAS=Close Air Support; CDNL=C-weighted day-night average sound level; CFA=Controlled Firing Area; dB=decibel; dB PK 15(met)=single-event peak level exceeded by 15 percent of events; DNL=day-night average sound level; DoD=U.S. Department of Defense; DTA=Donnelly Training Area; EIS=environmental impact statement; FAA=Federal Aviation Administration; FL=flight level; GIS=geographic information system; IFR=Instrument Flight Rules; L_{dnmr}=onset rate-adjusted day-night average sound level; MBTA=Migratory Bird Treaty Act; MSL=mean sea level; NAAQS=National Ambient Air Quality Standards; National Register=National Register of Historic Places; NEPA=National Environmental Policy Act; NHPA=National Historic Preservation Act; RNAV=Area Navigation; ROD=Record of Decision; SDZ=surface danger zone; SHPO=State Historic Preservation Officer; SUA=Special Use Airspace; SUAIS=Special Use Airspace Information Service; TCP=traditional cultural property; TFTA=Tanana Flats Training Area; USAG-FWA=U.S. Army Garrison Fort Wainwright, Alaska; USARAK=U.S. Army Alaska; USARTRAK=Army Recreational Tracking System; USFWS=U.S. Fish and Wildlife Service; UXO=unexploded ordnance; VFR=Visual Flight Rules; YTA=Yukon Training Area.

Table ES-5. Summary of Impacts for Expand Restricted Area R-2205

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
<p>Airspace Management and Use</p>	<p>The proposed use of the expanded R-2205 restricted area would provide increased restricted protective airspace over YTA.</p> <p>Multiple training activities may be scheduled and conducted within the different subareas on the same day, normally Monday – Friday, for an estimated total 300 days annually. The airspace may be scheduled up to 24 hours on any particular training day.</p> <p>It is not anticipated that the overall number of USARAK helicopter operations or Air Force sortie missions would increase significantly above current representative levels with the creation of this restricted airspace.</p> <p>The FAA has indicated that the R-2205 expansion in the areas surrounding Eielson AFB would have some adverse effects on the published arrival and departure procedures used to separate Eielson AFB aircraft from other air traffic in the area. It may also limit FAA options for routing VFR and IFR air traffic in the Fairbanks, North Pole, and Fort Wainwright areas. The manner in which adverse impacts would be avoided or reduced would be stipulated in an agreement examined in the FAA aeronautical study of this proposal.</p> <p>Several federal airways are located within this region with V444/T232 being in closest proximity but sufficiently clear of this proposed airspace so as not to be impacted by this expansion.</p> <p>Jet/RNAV Routes J502-515 transits southwest of the proposed airspace and is sufficiently distant from the boundary so as not to be impacted by this proposal.</p> <p>The Birch, Alaska Highway, and other flyways commonly used by VFR air traffic are sufficiently distant from the proposed airspace areas so as not to have any impacts on this traffic when these airspace subdivisions are active.</p> <p>No public airports or private chartered airfields are within the</p>	<p>This alternative would maintain the existing R-2205 without any expanded airspace and would, therefore, result in no changes to existing conditions in the current military and civil aviation uses of this airspace.</p>

Table ES-5. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	area of the proposed R-2205 expansion although the Fairbanks and Bradley airports and several chartered private airfields are within the general region of this proposed airspace.	
Noise	<p>The total number and types of munitions fired into the Stuart Creek Impact Area would not be expected to change. However, the expansion of R-2205 would allow a much larger range of weapons types to be used at DMPTR.</p> <p>Noise levels exceeding 62 dB CDNL do not extend beyond the boundaries of land currently withdrawn for military use. The area affected by peak noise levels (exceeding 115 dB PK 15(met)) would increase slightly under the proposed action. However, the non-military land area exposed to this noise level would not change in extent under the proposed action. Noise impacts would not exceed the significance thresholds established for this action.</p>	Under the No Action Alternative, R-2205 would not be expanded and no changes to existing training operations would occur.
Flight Safety	<p>The area covered by the R-2205 western expansion has little or no populace, therefore, the potential for any aircraft mishap in this area is minimal.</p> <p>The potential for a near miss/midair collision would be low to moderate for this proposed action since nonparticipating aircraft do not normally operate in this area and would be further restricted from entering this airspace when active.</p> <p>The potential for any bird/wildlife-aircraft strikes during low-altitude flights in this affected area would be low. There are measures already in place for maintaining awareness of any heightened bird activities and flight safety risks.</p>	Flight safety risks and the continuing safety programs in effect to address these risks would remain the same as currently exists.
Ground Safety	The Army has existing plans, policies, and procedures in place to avoid or reduce adverse significant impacts, regarding range safety and control, UXO and munitions safety, public access control, and fire and emergency response. Consequently, adverse impacts are not expected to occur.	No change in existing ground operations would occur under the No Action Alternative.
Air Quality	The area proposed for the expansion of the R-2205 airspace is in attainment of all NAAQS, and the proposed action would not increase aircraft operations or munitions usage. As there will be no net increase in criteria pollutant or HAP emissions,	Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at R-2205.

Table ES-5. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>the operation of R-2205 under the proposed action would result in less-than-significant to no air quality impacts.</p> <p>Since the R-2205 action would not result in an increase in emissions, it would not result in any impacts on Denali National Park.</p>	
Physical Resources	No Effect	
Water Resources	No Effect	
Hazardous Materials and Waste	<p>The proposed action would utilize existing on-the-ground range structure and would involve no new construction in the realigned boundary area.</p> <p>In addition, other than surficial ground disturbance associated with ground maneuvers of vehicles, no excavations or ground disturbance would occur.</p> <p>There are no known contaminated sites located in the realigned boundary area. Therefore, no adverse impacts would occur as a result of potentially encountering known or unknown contaminated soil.</p> <p>As part of the proposed action, vehicles would be used during training. There is the potential for accidental chemical release from refueling or maintenance activities during training activities. The Army would manage hazardous materials/waste in accordance with Army Regulation 200-1, <i>Environmental Protection and Enhancement</i> (Army 2007-1), which provides guidance on oil and hazardous substance spills, hazardous materials management, and the Installation Restoration Program (IRP).</p> <p>The risk of petrochemical spills is expected to increase under the proposed action due to the need to transport fuel and perform refueling operations in the field to support training requirements. However, due to the infrequency of such activities, combined with existing procedures and controls, the proposed action would result in the potential for adverse, but not significant impacts.</p> <p>There is the potential for munitions related hazardous materials</p>	<p>Under the No Action Alternative, there would be no realignment of the outer restricted area boundary. Therefore, additional hazardous material-related impacts would not occur.</p>

Table ES-5. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>impacts in association with this alternative. Munitions fragments and residues would be generated as a result of live-fire action. However, training would use existing impact areas for the discharge of ordnance from aircraft within the proposed restricted area, such that no adverse munitions-related chemical release impacts to the environment would occur.</p>	
<p>Biological Resources</p>	<p>As proposed for BAX, the restricted area expansion of the existing R-2205 would primarily differ from current activities by enabling additional air-to-ground ordnance use in the expansion areas. These activities may have localized effects to the vegetation and wildlife present within YTA.</p> <p>No new impact areas would be established and no substantially different impact types would be introduced into the R-2205 restricted areas as a result of this proposal. As for ongoing training, effects to biological resources would be localized and vegetation communities as a whole would not be expected to be adversely affected. The vegetation classes present in YTA are not unique or considered sensitive communities, but are widespread across the project region.</p> <p>Wildlife habitats present within the project area are not associated with sensitive, endangered, or threatened species, and are generally widely available within the project region. Wildlife species in the area are generally exposed to and may be habituated to military activities. The proposed expanded restricted areas in YTA do not contain important wildlife breeding, wintering, or nesting habitats. No significant effects to vegetation communities or wildlife populations are expected.</p>	<p>The current amount of localized ground disturbance (from training, vehicles, and live fire) would be expected to continue and wildlife using the area would be expected to remain active in occupied habitats. Localized vegetation impacts from existing training activities would continue.</p>
<p>Cultural Resources</p>	<p>No impacts are anticipated to cultural resources from the expansion of R-2205 and its training use. The annual average noise levels under the proposed airspace reclassification are not expected to noticeably change as a result of increased training activities, and would not be sufficient to damage any archaeological or historic architectural sites.</p> <p>In compliance with Section 106 of the NHPA, the Army has</p>	<p>Under the No Action Alternative there would be no expansion of R-2205 in YTA. Existing use of the restricted area would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.</p>

Table ES-5. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>completed consultation with the Alaska SHPO, who concurred with the Army’s determination of no adverse effect to historic properties.</p> <p>All compliance requirements for consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities have been completed.</p> <p>No significant adverse impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed expansion of R-2205.</p>	
<p>Land Use</p>	<p>The proposal involves the use of airspace and weapons firing at existing training areas, impact areas, and ranges. There would be no new areas exposed to surface disturbance; therefore, no impact to existing infrastructure, leases, rights-of way, or permits on military land on military or non-military land would result.</p> <p>Under the proposal, the area exposed to 62 dB CDNL and greater would remain within military land, with a slight increase within Eielson AFB (from 126 to 230 acres). This would not extend as far as the housing areas on base. As such, no areas would experience incompatible impulse noise levels from airspace use, ground training, or ordnance use.</p> <p>Currently, the only public uses taking place on YTA are recreational, including personal use and subsistence hunting, gathering and trapping, and some timber harvesting and wood cutting. With increased use of YTA for hazardous operations (up to 300 days per year), time available for these public uses and range management tasks, including vegetation management, restorative projects, research, monitoring, and surveys, would be very limited. Coordinated scheduling could minimize conflicts in arranging adequate time on range for management functions.</p> <p>Civilian ground and air access is currently permitted within the proposal area with the exception of several off-limits areas, including the DMPTR and the Stuart Creek Impact Area.</p>	<p>There would be no changes to the current project area under the No Action Alternative. Therefore, existing land use, public access, and recreation would remain under existing conditions.</p>

Table ES-5. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>Under this proposal, civilian ground and air access would be restricted during activation of R-2205.</p> <p>No charted airports are located within the project area on military lands. Therefore, no direct impacts on air access would occur. The restricted airspace would continue to affect public air access across R-2205 within the project area during activation. An increase in training activities would lead to more frequent airspace closures for military purposes. Indirect impacts on temporal and spatial availability of airspace to public aviation are expected to be minor.</p> <p>The proposed training activities for DMPTR and YTA would greatly reduce the amount of time that training areas are available for public use and recreation. Even though training schedules are available on USARTRAK and the public can plan around them, substantially reduced access may have a minor adverse but not significant impact on recreation on YTA due to its relatively low use.</p>	
Infrastructure & Transportation	No effect	
Socioeconomics	<p>The population within the defined census block of the proposed restricted airspace is 166 persons. There would be no persons exposed to noise levels exceeding 62 dB CDNL, since these levels do not extend beyond the boundaries of DoD-owned land.</p> <p>Potential civil aviation impacts associated with this action may include slightly increased flight distances and increased flight time in order to avoid the restricted airspace. To the extent that they would occur, these potential aviation impacts would result in economic impacts due to additional operating costs (primarily related to increased fuel use) associated with avoiding restricted airspace, and the costs of any expended efforts in tracking the airspace status through available advisory services.</p> <p>The economic impacts of any military or other civil aviation aircraft being delayed or diverted to any extent around the</p>	<p>Under the No Action Alternative, the creation of restricted area for R-2205 in YTA would not be established and there would be no changes or additional impacts to socioeconomic resources from current existing conditions.</p>

Table ES-5. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	proposed airspace when active cannot be quantified due to the many factors to be considered in estimating such impacts.	
Subsistence	Because the land for this proposed action is within a Federal non-rural area and a State non-subsistence area, subsistence resources are not managed, and Alaska residents are not given priority to harvest resources within the area. Therefore, there would be no impacts on subsistence.	Same as the Proposed Action.
Environmental Justice	<p>Other resources considered for environmental justice analysis (e.g., noise, land use, socioeconomics) would have less than significant impacts with mitigation measures referenced in those resource sections.</p> <p>Impacts from the proposed expansion of restricted area over R-2205 in YTA would not create disproportionately high and adverse environmental or health effects on minority or low-income populations or children.</p>	Under the No Action Alternative, there would be no additional disproportionately high and adverse environmental or health effects on minority and low-income populations or children.
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> <p>• FAA’s study (Airspace Management)</p> <p>Pending the FAA’s study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals.</p> <p>• Effects of military training on wildlife (Biological Resources)</p> <p>Continue to monitor effects of military training including overflights on select wildlife species (especially herd animals, waterfowl, and raptors) and fisheries during critical seasons such as breeding, young-rearing, and migration. Use knowledge to develop and implement strategies to minimize disturbance to priority wildlife in existing and new SUAs and restricted airspace. This would help natural resources and range managers to coordinate training schedules that minimize impacts on wildlife populations.</p> <p>• Sensitive wildlife awareness training (Biological Resources)</p> <p>Continue pilot and soldier education awareness of sensitive wildlife species habitats and seasonal behaviors utilizing GIS mapping and discuss procedures to reduce disturbances and to increase safety by reducing potential for aircraft strikes.</p> <p>• Continue noise effects study on wildlife (Biological Resources)</p> <p>Continue effort to conduct a detailed study to assess the impacts and effects of noise on wildlife, particularly key species such as caribou and bison, during critical life cycle seasons. Use information to include protection requirements within a noise management plan.</p> 		

Table ES-5. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<ul style="list-style-type: none"> <p>NHPA compliance (Cultural Resources)</p> <p>Mitigations for impacts to cultural resources are established through NHPA Section 106 consultation pursuant to 36 CFR 800. In compliance with Section 106 of the NHPA the Army has completed consultation with the Alaska SHPO and complied with all requirements for consultation with potentially affected Alaska Native Tribes, ANCSA corporations, and Tribal government entities to identify historic properties that may be affected, including TCPs, and develop management actions and mitigation measures to resolve any adverse effects, if required. It has been determined that significant adverse impacts to cultural resources and Alaska Native Tribes, ANCSA corporations, and Tribal government entities would not occur by the implementation of this proposal.</p> <p>In accordance with AR 200-1, all NHPA Section 106 consultation has been completed. In the event that previously unrecorded or unevaluated cultural resources are encountered, the Army would manage these resources in accordance with the NHPA and other Federal and state laws, Air Force, and DoD regulations and instructions, and DoD American Indian and Alaska Native Policy.</p> <p>Munitions contamination issues (Hazardous Materials and Waste; Biological Resources)</p> <p>The Army may augment the effort for their existing program to identify possible munitions contamination at impact areas on YTA. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams.</p> <p>Relationships with regulatory agencies (Biological Resources; Land Use)</p> <p>The military will maintain an open dialogue with ADNR, BLM, ADFG, and USFWS to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the ROD for this EIS.</p> <p>Trespass control (Safety-Ground; Land Use)</p> <p>The Army would expand enforcement to control trespass in YTA for the expanded R-2205 activities.</p> <p>Special use airspace safety (Safety-Flight)</p> <p>Continue efforts to comply with the respective Service formal flight safety programs, outlined in directives/regulations with supplements, that dictate those aircrew responsibilities and practices aimed at operating all manned and unmanned aircraft safely in existing modified and new SUAs.</p> <p>Subsistence use consultation (Subsistence)</p> <p>Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA-West,</p> 	

Table ES-5. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
DTA-East, YTA, and TFTA.		

Key: ADFG=Alaska Department of Fish and Game; ADNDR=Alaska Department of Natural Resources; AFB=Air Force Base; AFI=Air Force Instruction; ANCSA=Alaska Native Claims Settlement Act; BLM=Bureau of Land Management; CDNL=C-weighted day-night average sound level; CFR=Code of Federal Regulations; dB=decibel; dB PK 15(met)=single-event peak level exceeded by 15 percent of events; DMPTR=Digital Multi-Purpose Training Range; DoD=U.S. Department of Defense; EIS=environmental impact statement; FAA=Federal Aviation Administration; GIS=geographic information system; HAP=hazardous air pollutant; IFR=Instrument Flight Rules; NAAQS=National Ambient Air Quality Standards; NHPA=National Historic Preservation Act; RNAV=Area Navigation; ROD=Record of Decision; SHPO=State Historic Preservation Officer; SUA=Special Use Airspace; TCP=traditional cultural property; TFTA=Tanana Flats Training Area; USAG-FWA=U.S. Army Garrison Fort Wainwright, Alaska; USARAK=U.S. Army Alaska; USARTRAK=Army Recreational Tracking System; USFWS=U.S. Fish and Wildlife Service; UXO=unexploded ordnance; VFR=Visual Flight Rules; YTA=Yukon Training Area.

Table ES-6. Summary of Impacts for Night Joint Training

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
Airspace Management and Use	<p>Alternative A would extend the March and October MFE operations from 10:00 p.m. to midnight (12:00 a.m.) local time within the SUA typically used for these evening training missions, as well as the proposed new SUA.</p> <p>The MFE sortie-operations projected for the extended night hours should have minimal effects on civil aviation airspace uses.</p> <p>The later evening military flights during hours of darkness in which VFR aircraft would not normally operate should have minimal impacts on this aviation sector. VFR flights that may occur during later hours could obtain information on the active status of the MOAs and restricted areas being activated for missions and flight activities and plan their flight times/routes accordingly.</p> <p>This proposal would have minimal effects on the Fairbanks and Anchorage International airports and any other locations having flight activities during the later night hours.</p>	<p>Alternative B would include both MFE and routine training operations being conducted during the extended night hours, but not normally on the same evenings.</p> <p>Routine training during extended night time hours would be considerably less than the number of MFE operations to be conducted during those later hours.</p> <p>The relatively small proportion of MFE or routine training sortie-operations that would occur during the extended night hours would have little impact on Federal airways, jet/RNAV routes, VFR air traffic, or public/private airfields.</p>	<p>The No Action Alternative would not involve any MOA operations beyond 10:00 p.m. and would not change existing airspace uses and ATC system capabilities.</p>
Noise	The shift in time of sortie-operations to after	Same as Alternative A with the addition of	Under the No Action Alternative,

Table ES-6. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>10:00 p.m. would result in an increase of approximately 1 dB L_{dnmr} in all JPARC training airspace. Supersonic noise levels (CDNL) would also increase by about 1 dB beneath those airspace units that allow supersonic training.</p> <p>Noise impacts from night flights would not exceed the significance thresholds established for this action.</p> <p>Late-night munitions delivery is also a component of this proposal and would occur on ranges at which late-night munitions training already takes place. Noise impacts would not exceed significance thresholds established for this action component.</p>	<p>routine training during all times of the year.</p>	<p>operations in the MOA would continue to cease prior to 10:00 p.m. and noise levels would not change from existing conditions.</p>
Flight Safety	<p>This proposal would present minimal additional risk to flight safety while conducting the later night training operations. The reduced level of military operations and civil air traffic during later hours would reduce the potential for interactions between military and civil aircraft, thus minimizing the risk of any near-misses or midair collisions.</p> <p>The potential for any bird/wildlife aircraft strikes during later evening hours would always be a possibility, therefore, the measures currently in place for monitoring, reporting, and avoiding these hazards would continue to be followed by the Air Force for the proposed night operations.</p>	<p>Same as Alternative A with the addition of routine training during all times of the year.</p>	<p>The No Action Alternative would maintain nighttime flight operations within the timeframes and flight safety conditions that currently exist with those operations.</p>
Ground Safety	<p>This alternative does not include activities that would pose ground safety hazards, such as air-to-ground or live-fire ordnance training. Consequently, impacts on ground safety are</p>	<p>Same as Alternative A with the addition of routine training during all times of the year.</p>	<p>The No Action Alternative would maintain nighttime ground safety operations within the timeframes that currently exist with those</p>

Table ES-6. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
Air Quality	<p>not expected.</p> <p>For each of the proposed action alternatives, the proposed NJT action would shift the times at which nighttime sorties are conducted and would not result in an increase in flight activities or a change in the location of these sorties.</p> <p>Since flights would be spaced out over a longer period of time during the night, it will result in additional dispersion of aircraft emissions over the region and lower localized impacts.</p> <p>An air quality analysis of the impacts from Alternatives A and B was not conducted for this proposed action, as there would not be an overall change in the aircraft training emissions or to air quality in the affected region from current baseline conditions due to this action.</p>	<p>Same as Alternative A with the addition of routine training during all times of the year.</p>	<p>operations.</p> <p>Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations.</p>
Physical Resources	No Effect		
Water Resources	No Effect		
Hazardous Materials and Waste	<p>Contaminated sites are not applicable to this proposed action, as no ground activities would occur as part of this proposal.</p> <p>The expenditure of live ammunition or detonations has the potential to release hazardous chemicals or other elements, such as heavy metals, into the environment. However, the proposed training and exercises would use existing impact areas within R-2205 in YTA (Stuart Creek) and R-2202 in DTA-West (Oklahoma).</p>	<p>Same as Alternative A with the addition of routine training during all times of the year.</p>	<p>MOA hours would continue to be limited to 10:00 p.m.; therefore, impacts would be similar, but less, than those described for Alternative A.</p>

Table ES-6. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>These impact areas would be managed in accordance with current Federal, State of Alaska, Air Force, and Army regulations for the management, safe handling, and disposal of hazardous waste and materials associated with live and inert ordnance and UXO.</p>		
<p>Biological Resources</p>	<p>Because no infrastructure is needed, no ground effects are associated with the NJT proposed action; therefore, no impacts on vegetation would occur.</p> <p>The extended flight operations are proposed for March and October, actions would not be expected to coincide with the peak times of waterfowl migration (May and September) but would overlap more than do current operations.</p> <p>The greatest effect on waterfowl may be the increase in aircraft overflight at night roosting areas. However, with current avoidance restrictions in place, disturbance incidents are expected to be minimal.</p> <p>Bird-aircraft strike incidences have the potential to increase, but the potential effects of unavoidable bird-aircraft collisions on populations of waterfowl or other wildlife would be negligible and would not be measurable.</p> <p>Alternative A does not propose new threats to sensitive big game activities and would be expected to have little to no adverse effects to these species.</p> <p>Overall impacts to biological resources from Alternative A are expected to be adverse but not significant, and would be further reduced</p>	<p>Alternative B may present a somewhat higher potential for increased bird-aircraft strikes. This adverse impact would require more intensive planning among the BASH Team, pilots, and route planners to maintain safety.</p> <p>Otherwise impact potential would be the same as Alternative A with the addition of routine training during all times of the year.</p>	<p>Under the No Action Alternative, JPARC MOA hours would not be extended past 10:00 p.m.; therefore, wildlife resources would be expected to remain as under existing baseline conditions.</p>

Table ES-6. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	given implementation of mitigation and impact avoidance measures.		
Cultural Resources	<p>Compliance with all requirements for Tribal consultation has been completed. No impacts are anticipated to cultural resources, traditional resources, or Alaska Native activities from the proposed change in airspace operating hours and its training use.</p> <p>In compliance with Section 106 of the NHPA, ALCOM, on behalf of the Air Force, has completed consultation with the Alaska SHPO and determined that no historic properties will be affected by implementation of the proposed action.</p>	Same as Alternative A with the addition of routine training during all times of the year.	Under the No Action Alternative there would be no change in operating hours in JPARC. Existing use of the airspace would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.
Land Use	<p>This proposal would not result in impacts to land use, access and recreation.</p> <p>Average noise levels in affected MOAs would increase by approximately 1 dB. This change would result in imperceptible change in noise levels experienced on the ground currently, but these noise events could occasionally be loud enough to awaken or annoy a small percentage of persons. All existing flight avoidance procedures would continue.</p> <p>This proposal would result in minimal change in night noise under restricted airspace over military lands and would have no impact on recreation use.</p> <p>The night bombing component of this proposal would have minor impacts on land use and recreation.</p> <p>There would be no impacts to public access.</p>	Same as Alternative A with the addition of routine training during all times of the year.	For the No Action Alternative, there would be no change in night operations in MOAs and selected restricted airspace from current levels, and no change or additional impacts would result.
Infrastructure &	No Effect		

Table ES-6. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
Transportation			
Socioeconomics	<p>It is anticipated that a change in flight operations to night hours would not substantially change noise levels under the airspace and would not be expected to adversely impact residential or recreational users. In addition, current night time training activities within the affected environment would not be anticipated to present a significant impact on civilian air traffic since trends suggest that fewer IFR flights generally occur during the later evening hours and very little VFR flights occur during hours of darkness. Similarly, night bombing at two existing impact areas on DTA-West and YTA does not represent a change in activities. Resulting noise levels of concern would remain within military boundaries and away from existing population centers.</p> <p>The potential for impacts on socioeconomic resources from night training are anticipated to be low.</p>	<p>Under Alternative B, the number of nighttime sorties is expected to remain the same and occur during MFEs, as is the current situation, but would be divided between the months of March and October and would extend the operating hours until midnight and landing by 1:00 a.m.</p> <p>Under Alternative B, impacts on socioeconomic resources are anticipated to be similar to those described under Alternative A.</p> <p>The potential for impacts to socioeconomic resources under Alternative B are anticipated to be low to medium.</p>	<p>Under the No Action Alternative, socioeconomic resources would remain under current existing conditions.</p>
Subsistence	<p>Under Alternative A, the change in flight operations, including bombing, to night hours would not substantially change noise levels under the airspace and is not expected to adversely impact wildlife species.</p> <p>No significant impacts, as defined by ANILCA, on subsistence resources or activities are expected.</p>	<p>Potential impacts on subsistence resources and activities would be the same as those described under Alternative A.</p>	<p>No changes in times of flight are proposed under the No Action Alternative. Therefore, subsistence resources would be the same as under current existing conditions.</p>
Environmental Justice	No Effect		

Table ES-6. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
MITIGATION MEASURES:			
	<ul style="list-style-type: none"> National Wild and Scenic Rivers Protection (Biological Resources; Land Use-Management, Access, Recreation) For the period of May 15 to September 30, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-nautical mile buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake). VFR Flight Corridors (Airspace Management; Safety – Flight; Biological Resources; Land Use-Management, Access, Recreation; Socioeconomics; Subsistence) Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft. Concentrated Activity Areas (Land Use-Management, Recreation; Socioeconomics) Comply with flight avoidance areas established by the 11th Air Force Airspace and Range Team and listed in the 11th Air Force Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th Air Force Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist). 		

Key: ALCOM=Alaskan Command; ATC=Air Traffic Control; BASH=bird/wildlife-aircraft strike hazard; CDNL=C-weighted day-night average sound level; dB=decibel; DoD=U.S. Department of Defense; JPARC=Joint Pacific Alaska Range Complex; L_{dnmr}=onset rate-adjusted day-night average sound level; MFE=major flying exercise; MOA=Military Operations Area; MSL=mean sea level; NHPA=National Historic Preservation Act; NJT=Night Joint Training; RNAV=Area Navigation; ROD=Record of Decision; SHPO=State Historic Preservation Officer; SUA=Special Use Airspace; UXO=unexploded ordnance; VFR=Visual Flight Rules; YTA=Yukon Training Area.

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
Airspace Management and Use (Key impacts by individual proposed UAV corridor)	<p>Link between Eielson AFB and R-2211</p> <p>The proposed restricted area would adjoin the ceiling of the Eielson AFB Class D airspace and would require that UAV flights be separated from other airfield operations while transitioning between the runway environment and the overlying corridor. Procedures would be outlined in a formal agreement among the responsible UAV</p>	<p>Same as Alternative A for each proposed UAV corridor.</p> <p>Currently, a Certificate of Authorization is used as an alternative to establishing a restricted area for limited UAV</p>	<p>Under this alternative, no restricted area or other designated airspace would be considered for a UAV corridor; therefore, there would be no additional impacts on civil aviation</p>

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>functions, Eielson AFB airfield management, and the Fairbanks/ Anchorage ATC facilities to define how this airspace would be integrated with the Class D airspace structure and uses, when active.</p> <p>The Federal airway potentially affected by this proposal is the V444/T232/A2/A15 segment that intersects this corridor. An average of two IFR flights transits this airway daily with typical assigned altitudes at 8,000 feet MSL and above. This is within the range of altitudes proposed for this corridor use. Depending on the days and time periods this restricted area is activated, there may be a minimal impact on these few daily flights should they be delayed or rerouted around this corridor by the FAA.</p> <p>This proposal has the greatest potential to adversely affect VFR air traffic operating along the highways, flyways, and other flight paths commonly flown between Fairbanks and points south and southeast where they would typically operate through the area of this proposed restricted area, without mitigations to avoid or reduce adverse impacts.</p> <p>Fairbanks International, Bradley, and several other more distant public and private airfields in the general area may be potentially affected by the ability for based aircraft to transit to/from destinations where their routes of flight would normally require transit through this proposed airspace. As noted by the FAA, this corridor would have the potential to affect the routing and sequencing of Fairbanks arriving and departing traffic. It was also noted that the Fairbanks TRACON airspace provides flight training opportunities for both VFR and IFR flight training that could be also affected by this proposal.</p>	<p>types and operational needs. USARAK currently uses this option as needed to support their limited UAV requirements. Because of the restrictive nature of a Certificate of Authorization, the potential effects of establishing this type designation was considered to be the same as discussed above for Alternative A relative to the limitations and restrictions the active status of this corridor may have on civil aviation airspace uses.</p>	<p>use of this airspace.</p>
<p>Airspace Management and Use</p>	<p>Link between Eielson AFB and R-2205</p> <p>Activation of this proposed corridor would be independent of or in conjunction with the proposed restricted area expansion for R-2205 to integrate/accommodate compatible USARAK and Air Force flight activities</p> <p>In all cases, this airspace would be under the positive control of the Fairbanks TRACON or Anchorage ARTCC to ensure separation is maintained between this corridor use and other nonparticipating IFR</p>	<p>Same as Alternative A.</p>	<p>Under this alternative, no restricted area or other designated airspace would be considered for establishing this UAV corridor; therefore, there would be no additional impacts on civil aviation use of this airspace.</p>

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>air traffic in region.</p> <p>No Federal airways transit within or close proximity to this proposed corridor, therefore, the potential direct impacts of this restricted airspace on airway traffic would be minimal. However, as noted by the FAA, there may be indirect impacts on any airway traffic that would normally be directed by ATC through this affected airspace while transiting to/from Ladd AAF, Eielson AFB, or Fairbanks International.</p> <p>The only jet/RNAV route transiting the affected area is the NCA 22 track used primarily by air traffic operating at FL290 and above and would not be impacted by use of this restricted airspace corridor.</p> <p>Public input suggests the majority of VFR air traffic flights operate west of the Eielson AFB and adjacent YTA region with this corridor having minimal impact on this aviation community.</p> <p>No public airports or private airfields are located in close proximity to this proposed corridor.</p>		
<p>Airspace Management and Use</p>	<p>Link between Allen Army Airfield and R-2202</p> <p>This corridor would provide the restricted airspace environment required to transit UAV aircraft between Allen AAF and R-2202. Allen AAF serves Fort Greely military aviation activities while permitting civil aircraft to operate at this airfield on a prior permission required basis.</p> <p>This proposed restricted area corridor is located within or near federal airway V-444/T-232, V-515, and V-481/T226/B25, which all converge at Delta Junction. FAA data indicate the daily average use of these routes is 2 to 3 IFR flights. Potential impacts of this restricted area on the lower density use of these airways and any other off-route air traffic in this region would be minimal, depending upon the flight times/altitudes and the activated corridor times/altitudes use which would be under the positive control of the Anchorage ARTCC.</p> <p>For jet/RNAV routes, the daily average 3 IFR flights en route along the J-167 segment transiting this region would be above the altitudes</p>	<p>Same as Alternative A.</p>	<p>No restricted area or other designated airspace would be established to support any UAV operations; therefore, there would be no additional impacts on the current uses of this airspace.</p>

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>proposed for the restricted area corridor and be unaffected by this action.</p> <p>This proposed restricted area would cross the Richardson Highway flyway commonly used by VFR aircraft to transit between the Fairbanks area and points south of the Allen AAF. During the times this airspace is active, VFR flights would be restricted from operating through this area and would need to either delay their flights or circumvent Allen AAF to the west to remain clear of this corridor. This impact would be increased during time periods that both this corridor and the proposed BAX restricted area are active. Such impacts could be considered significant, depending upon the extent to which one or both restricted areas are activated and at what altitudes and those mitigation measures to be considered by USARAK to minimize impacts on this aviation community.</p> <p>Several airfields are located in the immediate area to include Delta Junction, and six to eight private airfields within about a 10-NM radius of the Allen AAF. Many of these airfield operations would be VFR flights which may be potentially impacted by restricted airspace crossing the Richardson Highway flyway.</p>		
<p>Airspace Management and Use</p>	<p>Link between R-2202 and R-2211</p> <p>This corridor would enable UAV training flights to transit between the two restricted areas so as to maximize use of their respective range capabilities.</p> <p>There are no federal airways transiting within the proposed airspace.</p> <p>No jet/RNAV routes are located within or near the proposed corridor.</p> <p>Depending on the altitudes activated for this corridor, VFR air traffic may be unable to transit through this area at the lower altitudes required to remain below this active airspace. Depending on the volume of VFR aircraft that operate within this area, it cannot be determined to what extent this restriction would impact the general aviation community. VFR pilots having a need to operate within this area may have to delay or otherwise alter their flights to avoid this restricted area when active. The active status of this airspace would</p>	<p>Same as Alternative A.</p>	<p>No restricted area or other designated airspace would be considered for UAV operations; therefore, there would be no additional impacts on current civil aviation use of this airspace.</p>

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>be provided via the SUAIS and other advisory services.</p> <p>No public or private airfields are located within close proximity to this proposed corridor.</p>		
<p>Airspace Management and Use</p>	<p>Link between R-2205 and R-2202</p> <p>This corridor would be used for those training missions where UAV may transition between these restricted areas and use the range impact areas within each.</p> <p>This proposed corridor would cross federal airway V-444/T232 and could encompass those altitudes assigned by ATC for this route air traffic. This proposal may have moderate potential impacts on the reported two to three average daily flights using this airway and any transition of these aircraft to/from Fairbanks International. ATC may have to reroute or delay nonparticipating aircraft from this active corridor, when necessary. Mitigation measures to address adverse impacts will be examined by the FAA.</p> <p>The two jet/RNAV routes transiting within or near this proposed corridor are J502-515 and J167. The daily average 6 to 12 IFR flights on J520-515 and 3 IFR flights on J-167 would normally transit at altitudes above the corridor ceiling and would not be impacted by this active restricted area.</p> <p>This corridor may have the potential for moderate to significant impacts on VFR aircraft that frequently operate along those highway, river, and pipeline flyways commonly flown by this traffic between the Fairbanks and Delta Junction areas. This may cause flight delays or rerouting. Pilots would need to obtain the active status of this airspace through NOTAMs, the SUAIS, and other available advisory services prior to conducting a flight through this area.</p> <p>A number of public and private airfields are located in the Fairbanks and Delta Junction areas that, while not directly affected by this proposal, may have aircraft that would be subject to flight restrictions, delays, and other inconveniences if their route of flight transited this proposed airspace.</p>	<p>Same as Alternative A.</p>	<p>No restricted area or other designated airspace would be considered to support UAV operations; therefore, there would be no additional impacts on civil aviation use of this airspace.</p>
<p>Airspace</p>	<p>Link between Fort Wainwright and R-2211</p>	<p>Same as Alternative A</p>	<p>No restricted area or other</p>

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
Management and Use	<p>The corridor would adjoin the class D airspace overlying Fort Wainwright (Ladd AAF) and would therefore require a coordinated effort in planning UAV takeoffs, landings, and transition to the restricted area corridor be appropriately segregated from other airfield operations and missions within and outside of this terminal airspace. Procedures for integrating this corridor airspace with the Ladd AAF Class D airspace and segregating UAV operations from other air traffic would be defined in an agreement among all responsible entities.</p> <p>This proposed corridor would cross V-444/T232 and have the potential for impacts on this airway traffic. The extent to which this corridor would impact control and management of air traffic operations in this airspace environment will be further examined in the FAA aeronautical study.</p> <p>En route jet/RNAV air traffic in level flight at the higher altitudes on J502-515 and other routes transiting within/near this affected area would not be impacted by this proposed corridor.</p> <p>The potential impacts this proposed corridor may have on VFR air traffic would be the same as discussed above for other restricted airspace proposals intersecting commonly used VFR flyways.</p> <p>The location of this corridor within the Fairbanks terminal airspace and its close proximity to Fairbanks International, Eielson AFB, the Bradley airport, and several private airfields in this general area may impact the ATC options for routing air traffic arrivals/departures through this airspace environment. Any potential impacts this proposal may have on this terminal airspace environment, arrival/departure routes and gates, and instrument procedures would be the focus of the FAA aeronautical study for this proposal.</p>		designated airspace would be considered to support UAV operations; therefore, there would be no additional impacts on civil aviation use of this airspace.
Airspace Management and Use	<p>Link between Fort Wainwright and R-2205</p> <p>The manner in which this corridor would be scheduled, managed, and used is the same as discussed previously to link Fort Wainwright with R-2211.</p> <p>This corridor would not intersect any federal airways and therefore</p>	Same as Alternative A.	No restricted area or other designated airspace would be considered to support UAV operations; therefore, there would be no additional impacts on civil

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>would not have any direct impacts on airway traffic.</p> <p>This corridor would also not intersect any jet/RNAV routes in the area and therefore not impact this en route traffic other than potentially any transitioning of this route traffic between a jet route and Fairbanks International Airport.</p> <p>This proposed corridor is more distant from those areas and flyways where VFR air traffic more frequently operate and may have less impact on general aviation.</p>		<p>aviation use of this airspace.</p>
Noise	<p>The corridors would have a floor altitude of 1,200 AGL. Overflight noise levels would be similar to noise levels generated by common civilian aircraft. Time-averaged noise levels in the corridors were calculated under the highly conservative assumption that all UAVs would follow a single flight track and would fly at the lowest altitude permitted. Under this scenario noise levels generated by the proposed UAV operations would be approximately 35 dB L_{dnmr}. UAV overflight could potentially result in annoyance, but noise impacts would not exceed significance thresholds established for this action.</p>	<p>Same as Alternative A.</p>	<p>Under the No Action Alternative, restricted area UAV corridors would not be established, UAV activity would continue to occur as it does under baseline conditions, and no additional noise impacts would occur.</p>
Flight Safety	<p>The flight safety assessment includes all seven proposed UAV corridors.</p> <p>The potential risk of an aircraft mishap for UAV operations under this alternative would be low. Mishap rates for UAV aircraft continue to decline as technologies, pilot-operator experience, and other advances provide for the enhanced command, control, and operation for UAVs and flight activities.</p> <p>The potential for a near miss/midair collision between UAV and other military or civilian aircraft would be minimal since these operations would be contained within protective airspace that separates these activities from other aircraft.</p> <p>Since UAV aircraft operate at much lower speeds and has a smaller profile than manned aircraft, the potential for bird-strike damage causing catastrophic damage is extremely low.</p>	<p>Same as Alternative A.</p>	<p>No UAV activities or protective airspace for their operations would be considered under the No Action Alternative; therefore, there would be no additional impacts or added flight or ground safety concerns associated with this alternative.</p>
Ground Safety	<p>UAV armaments would not be used within these corridors; therefore, this alternative does not include activities that pose ground safety</p>	<p>Same as Alternative A.</p>	<p>Under the No Action Alternative, restricted area</p>

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (*Continued*)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	hazards, such as air-to-ground or live-fire ordnance training. Consequently, impacts on ground safety are not expected to occur.		UAV corridors would not be established and UAV activity would continue to occur as it does under current existing conditions.
Air Quality	<p>The air quality assessment includes all seven proposed UAV corridors.</p> <p>Any increases in particulate matter and carbon monoxide emissions from proposed operations in the seven UAV corridors would not exceed their applicable <i>de minimis</i> conformity thresholds of 100 tons per year. Thus, air quality impacts from Alternative A would not be considered significant, and a conformity determination is not necessary.</p> <p>Additionally, increases in emissions of the other criteria pollutants from Alternative A would not exceed their applicable PSD significance thresholds of 250 tons per year.</p> <p>Combustive emissions from the operation of UAVs in the corridors would contain HAPs that could potentially impact public health. However, as indicated by the low level of criteria pollutant emissions, UAV operation in the corridors as proposed under Alternative A would not be expected to result in significant impacts on public health, as the mobile and intermittent nature of these sources and the wide geographic regions of proposed operations would produce minimal impacts of HAPs in a localized area.</p> <p>As the increases in emissions that would result from operations under Alternative A would be minimal, the impacts from proposed emissions under this alternative on air quality-related values in Denali National Park would be expected to be negligible.</p>	Same as Alternative A.	Air quality impacts under the No Action Alternative would not differ from air quality impacts generated by existing operations in the affected areas.
Physical Resources	No Effect		
Water Resources	No Effect		
Hazardous Materials and Waste	No Effect		
Biological	No Effect		

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
Resources			
Cultural Resources	<p>The cultural assessment includes all seven proposed UAV corridors.</p> <p>No impacts are anticipated to cultural resources from the proposed establishment of the UAV corridors and their training use.</p> <p>In compliance with Section 106 of the NHPA, the Army has completed consultation with the Alaska SHPO, who has concurred with the Army’s determination of no adverse effect to historic properties.</p> <p>No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed establishment of the UAV corridors and their training use.</p> <p>All compliance requirements for consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities have been completed.</p>	Same as Alternative A.	Under the No Action Alternative there would be no expansion of restricted areas for the proposed UAV access corridors, no UAV corridors or operations would occur between various elements of SUA in the JPARC and impacts on cultural resources would be as under existing conditions.
Land Use	<p>The land use assessment includes all seven proposed UAV corridors.</p> <p>The primary source of impact to surface uses is from noise from UAVs, and perceptions of safety concerns. The projected noise levels for UAV operations in the corridor sectors with a minimum floor altitude of 1,200 feet AGL of 41 dB L_{dnmr} and of 33 dB L_{dnmr} for those with floor altitudes of 3,000 feet is below thresholds of concern for any land use.</p> <p>Operations of UAVs would not inhibit access to any roads, trails, recreational areas or other locations on the ground. Consequently, this proposal would have no effect on public ground access.</p>	Same as Alternative A.	Under the No Action Alternative, no UAV corridors or operations would occur between various elements of SUA in the JPARC. No changes or additional impacts affecting land use, public access or recreation would occur.
Infrastructure & Transportation	No Effect		
Socioeconomics	<p>The socioeconomic assessment includes all seven proposed UAV corridors.</p> <p>UAV access could potentially affect general aviation, resulting in economic impacts to regional business and communities from delays or fuel costs associated with rerouting. Such impacts would depend on civil air traffic densities/peak periods and the individual areas and</p>	Same as Alternative A.	Under the No Action Alternative, no UAV corridors would be established. Therefore, no changes to current existing conditions of

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>time frames in which the proposed UAV flight activities would occur. The FAA and Air Force would address any impacts and mitigation measures to be taken before implementation of any airspace proposals.</p> <p>The economic impacts of any commercial or other civil aviation aircraft being delayed or diverted to any extent around the proposed corridors when active cannot be quantified due to the many factors to be considered in estimating such impacts.</p> <p>Economic impacts to general aviation pilots would depend on routes of flight and decisions on whether to delay flight when the corridor is active versus flying through or avoiding the corridors.</p>		socioeconomic resources are anticipated.
Subsistence	<p>The subsistence assessment includes all seven proposed UAV corridors.</p> <p>The narrow corridors of restricted airspace would be active for a maximum of 50 days per year. It is not expected that access to subsistence resources by aircraft would be impacted, and thus that harvest of subsistence resources would not be delayed to such a degree that the communities ranked as high in dependence on subsistence resources would be adversely impacted.</p> <p>Additionally, public access to the area beneath the restricted airspace corridors would not be restricted, and individuals would continue to participate in subsistence resources as they are currently practiced.</p> <p>Therefore, no significant impacts to subsistence resources as defined by ANILCA would be expected.</p>	Same as Alternative A.	Under the No Action Alternative, no new restricted airspace or Certificate of Authorization airspace would be established. Subsistence activities would continue as they are currently practiced.
Environmental Justice	<p>The environmental justice assessment includes all seven proposed UAV corridors.</p> <p>Public access to the area beneath the restricted airspace corridors would not be restricted. Based on a review of environmental consequences for other related resources, potentially significant impacts would be reduced through proposed mitigations and other management actions. No disproportionately high and adverse environmental or health effects on minority and low-income populations or children would occur.</p>	Same as Alternative A.	No restricted airspace or Certificate of Authorization airspace would be established and conditions and practices in the area would continue as they currently exist. There would be no additional disproportionately high and adverse environmental and

Table ES-7. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
			health effects on minority and low-income populations or children.
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> <p>• FAA’s study (Airspace Management)</p> <p>Pending the FAA’s study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals.</p> <p>• Sandhill crane surveys (Safety-Flight)</p> <p>Conduct sandhill crane surveys during spring and fall migration periods.</p> <p>• Special use airspace safety (Safety-Flight)</p> <p>Continue efforts to comply with the respective Service formal flight safety programs, outlined in directives/regulations with supplements, that dictate those aircrew responsibilities and practices aimed at operating all manned and unmanned aircraft safely in existing modified and new SUAs.</p> <p>• Subsistence use consultation (Subsistence)</p> <p>Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA.</p> 			

Key: AAF=Army Airfield; AFB=Air Force Base; AGL=above ground level; ANCSA=Alaska Native Claims Settlement Act; ANILCA=Alaska National Interest Lands Conservation Act; ARTCC=Air Route Traffic Control Center; ATC=Air Traffic Control; BAX=Battle Area Complex; dB=decibel; FAA=Federal Aviation Administration; FL=flight level; HAP=hazardous air pollutant; IFR=Instrument Flight Rules; L_{dnmr}=onset rate-adjusted day-night average sound level; MSL=mean sea level; NCA=Northern Control Area; NHPA=National Historic Preservation Act; NM=nautical mile; NOTAM=Notice to Airmen; PSD=prevention of significant deterioration; RNAV=Area Navigation; SHPO=State Historic Preservation Officer; SUA=Special Use Airspace; SUAIS=Special Use Airspace Information Service; TRACON=Terminal Radar Approach Control; UAV=unmanned aerial vehicle; USAG-FWA=U.S. Army Garrison Fort Wainwright, Alaska; USARAK=U.S. Army Alaska; VFR=Visual Flight Rules; YTA=Yukon Training Area.

ES.4.6 Cumulative Impacts

The analysis of cumulative impacts considers the effects of the proposals under consideration in combination with other past, present, and reasonably foreseeable future actions taking place in the project area, regardless of what agency or entity undertakes these actions. This EIS analyzes cumulative impacts in Chapter [4.0](#). Specifically, Section [4.8](#) sets forth the additive or interactive effects of the 12 actions proposed in this EIS, in aggregate, considered together with the effects of other past, present, and reasonably foreseeable future actions in the greater JPARC region. For most resources no cumulative impacts were identified and there was no need for additional or more detailed study of potential impacts. Each of the JPARC programmatic proposals will require further study of cumulative impacts and disproportionately high and adverse environmental or health effects when definitive sites and operations are evaluated in tiered environmental studies. Similarly, other large-scale actions in the region will undergo separate evaluations and will include conclusions and mitigation measures based on further details of those actions, and in some cases, updated information about affected environments.

Resources that have the potential to create direct or inter-related cumulative impacts, or for which additional study or consultation would be needed to identify cumulative impacts, include: airspace management and use, noise, biological resources, land use, subsistence, cultural resources, socioeconomics and environmental justice. Anticipated potential cumulative impacts are summarized below:

Airspace Management and Use

Cumulative impacts on airspace management (Section [4.8.1](#)) due to restrictions on civilian instrument flight rules (IFR) and visual flight rules (VFR) traffic may have cumulative effects on civilian access to airspace, and other inter-related impacts on human/social resources. Use of airspace for a variety of purposes, both ongoing and future, will require continued coordination between regional and military airspace managers and pilots to maximize access for all users.

Noise

Cumulative noise impacts (Section [4.8.2](#)) would occur in areas where the twelve JPARC proposed actions overlap, but would not be expected to be significant and would not create disproportionately high and adverse environmental or health effects. The combined impact of implementing JPARC actions together would not cause a significant impact that is not identified for each of the individual proposals. The Fox 3 MOA expansion/new Paxon MOA combined with night joint training could cause an additional 1-decibel (dB) increase and would not result in noise levels beneath the Fox 3/Paxon airspace areas greater than 55 dB onset rate-adjusted day-night average sound level (L_{dnmr}) or 62 dB C-weighted day-night average sound level (CDNL). JPARC proposed actions that involve munitions use in combination would not result in noise levels exceeding 62 dB CDNL in areas not owned by DoD.

Actions that may or may not be taken based on the findings of USARAK Range and Training Land Program Development Plan are not yet ripe for NEPA analysis, and it is not possible at this time to determine the level of noise impacts associated with these potential actions or their cumulative impacts with JPARC actions. Similarly, if F-35 aircraft were to be bedded down at an installation in Alaska, noise impacts would be dependent on the number of aircraft and how those aircraft would operate. Future analysis would be needed to determine the location of any noise impacts outside of military land and any land uses or populations affected.

Biological Resources

Although biological resource impacts (Section [4.8.8](#)) from JPARC definitive and programmatic projects affecting DTA may be less than significant on an individual basis given application of mitigation and established resource-protective best management practices (BMPs) and standard operating procedures (SOPs), collectively the direct and indirect impacts on biological resources would be substantial within portions of DTA and the site-specific impacts cumulatively significant. Within the wider region of JPARC proposals, the pathways of impacts on biological species tend not to overlap. For example, airspace actions resulting in changes to noise may affect some species during certain life cycle periods, but these effects are different and not cumulative with impacts caused directly by ground disturbance from actions such as the proposed Susitna Hydroelectric Dam project.

Land Use

For land use (Section [4.8.10](#)), several actions would increase the use of military land and associated restricted airspace for both hazardous and non-hazardous training, particularly within DTA-West, DTA-East, YTA, and TFTA. Cumulatively these would result in less time available for non-military uses throughout the JPARC training areas from about 80 percent down to less than 50 percent annually. The Army publishes its training and area closures particularly during September to allow the public to make appropriate plans based on whether they will be able to access military lands. A coordinated and comprehensive public use scheduling plan serves to limit impacts on locally important land use and recreational opportunities on military lands. Such actions would reduce the potential for cumulative land use impacts.

With regard to land use impacts from ground-based activities, future proposals should evaluate any expansion of noise exposure greater than 62 dB CDNL and peak exposure above 115 dB outside of military land, particularly if they involve new types of munitions or increased expenditures.

Increasing population in the Fairbanks-Delta Junction area is expected to cause incremental changes in the region as human development and activities extend and concentrate in specific locations. Pressures from growth may over time diminish qualities of naturalness and quiet that are characteristic of the region currently and have indirect impacts on land use. Discrete proposals and actions are part of this trend; however, mitigations for these actions would generally apply to specific effects rather than as more widespread solutions and growth management controls.

Subsistence

No significant restrictions to subsistence resources are expected from the cumulative effects of the JPARC proposed action, other DoD actions, and non-DoD actions. Nevertheless, subsistence impacts (Section [4.8.13](#)) related to IFR and VFR flight limitations on civilian aircraft traffic are projected for the Expanded Fox 3 MOA and New Paxon MOA proposal and the RLOD proposal. JPARC proposals that involve construction or use of the DTA, where Federal subsistence is permitted, have the potential to create a cumulative impact to subsistence resources. No significant restrictions to subsistence resources are expected from these cumulative actions given access to other subsistence resources in the vicinity of DTA.

Separate from the JPARC, the areas associated with military actions currently experience levels of military activity. Subsistence resources continue to be harvested in those areas. Congruent non-military actions in the area are not expected to directly interact with the JPARC actions in such a way as to restrict subsistence harvests or affect the distribution of subsistence resources. The underlying effects of growth may also have indirect effects on subsistence practices and uses of regional resources. As stated above

(for Land Use), the cumulative effect of JPARC and other actions can provide mitigations for specific areas of concern, but not the more complex aspects of growth.

Cultural Resources

For cultural resources (Section [4.8.9](#)), although no cumulative impacts have been identified for the combined JPARC actions and other DoD or non-DoD actions, government-to-government consultation has already been initiated and will be ongoing to identify potential impacts and any mitigations needed to avoid, minimize, or reduce impacts to acceptable levels.

Socioeconomics

For socioeconomics (Section [4.8.12](#)), no direct cumulative impacts on housing or infrastructure are expected, although changes in employment and income could indirectly affect housing demand or funding for infrastructure projects. The establishment of harvest strategies for groundfish fisheries in the GOA and other conservation measures and plans have the potential to interact with the JPARC Missile Live-Fire proposal with regard to commercial fishing impacts. Additional fishing restrictions in sensitive habitats in the GOA along with restrictions in access during military activities could result in cumulative impacts to commercial fisherman. The level of significance would depend on changes in overall expenditures and the value of the catch.

Environmental Justice

With regard to land use impacts from ground-based activities, future proposals should evaluate any expansion of noise exposure greater than 62 dB CDNL and peak exposure above 115 dB outside of military land, particularly if they involve new types of munitions or increased expenditures. If noise impacts to human/social resources were projected to occur, an environmental justice evaluation would be needed.

ES.4.7 Mitigation and Protective Measures

NEPA regulations require an EIS to include appropriate mitigation measures not already included in the Proposed Action or Alternatives (40 CFR 1502.12(f)). Each of the alternatives, including the proposed actions considered in this EIS, already include protective or mitigation measures intended to reduce environmental impacts. Measures, such as BMPs and SOPs, and existing mitigations that are currently in place for the operational areas are included in the JPARC EIS. Information in Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, describes these ongoing measures by listing existing mitigations applicable to military SUA associated with the JPARC proposals as well as the proposed mitigations under consideration to reduce the impacts of the actions described in the EIS. Both tables indicate for which proposals each measure applies

As part of its commitment to sustainable use of resources and environmental stewardship, the Army and Air Force incorporate measures that are protective of the environment into all of their activities. These include employment of BMPs, SOPs, adoption of conservation recommendations, and other protective measures that mitigate the impacts of military training activities on the environment. Some of these measures are generally designed to apply to certain geographic areas during certain times of year or for specific types of training. Conservation measures covering habitats and species occurring in the JPARC have been developed through various environmental analyses conducted by the Air Force, Navy and Army for airspace, land and sea ranges, and adjacent coastal waters. The resource impact assessments in Chapter [3.0](#) of the EIS are based on the continued implementation of these measures as a basis for future resource management. Existing conditions for each resource reflect these as ongoing management actions.

As part of its commitment to sustainable use of resources and environmental stewardship, the Army and Air Force have also developed new proposed mitigations to reduce expected or potentially significant impacts resulting from the proposals evaluated in the EIS. These new proposed mitigations are provided in Chapter 3.0, following the analysis for each resource and proposal. These are also listed in Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, Tables K-1 and K-2, and in [Table ES-2](#) through [Table ES-7](#).

ES.4.8 Other Required Considerations

Possible Conflicts with Objectives of Federal, State, and Local Plans, Policies, and Controls

Based on an evaluation with respect to consistency with statutory obligations, the JPARC EIS has sought input from various Federal, State and local agencies with management responsibilities in the affected region. Implementation of JPARC proposed actions will incorporate measures to address management concerns and planning priorities of these agencies to minimize conflicts with their plans, policies, or legal requirements. Appendix B, *Definition of the Resources and Regulatory Settings*, provides a summary of environmental compliance requirements that may apply.

Relationship between Short-term Uses and Long-term Productivity

The six definitive proposed actions and alternatives would result in both short- and long-term environmental effects. Overall, the six definitive proposals involve little physical development that would displace and reconfigure land from its current or planned use. As such, little change to long-term productivity is anticipated from implementing the definitive proposals.

JPARC proposals involving weapons firing and associated air operations (such as RLOD, BAX Restricted Airspace Addition, and R-2205 Expansion) mostly use existing targets and impact areas. Minor infrastructure upgrades associated with the RLOD, BAX Restricted Airspace Addition, and R-2205 Expansion proposals would occur in areas that currently support military use and have some existing modifications to support ongoing activities. These areas are mostly in a natural state and would not experience any appreciable long-term loss in productivity from very dispersed man-made structures. The intrinsic qualities of the land, use, and long-term productivity would not change. Controlled access to non-military land from the RLOD capability would impact access and near-term productivity of the affected non-military areas. Controlled access would not change any intrinsic qualities of the land and long-term productivity (to support wildlife and all existing uses). Two small proposed temporary target areas within existing training areas within DTA-West for the RLOD and a mortar range for the BAX are the exception and would incur long-term impacts, although they would not be significant.

For actions involving airspace changes and air operations only (Fox 3 MOA Expansion and Paxon MOA Addition, NJT, and UAV Access), short-term effects could include localized airspace disruptions and higher noise levels in some areas. For the JPARC, most aircraft-related impacts are short-term, temporary, and could stop without causing permanent changes. Noise effects are short-term and would not be expected to result in permanent or long-term changes in wildlife or habitat use. Charting new airspace is an aeronautical action and would not cause long-term change in underlying land use. Continued use of chaff and flares for training would not negatively affect the long-term quality of the land, air, or water.

The programmatic proposals involve the development of infrastructure on the ground or intensive ground training activities, such as the ISBs, Enhanced Access to Ground Maneuver Space, and access roads to Tanana Flats Training Area. These actions would use land that is mostly natural and undeveloped, and this could result in long-term change in the use and productivity of the affected land. New roads and

trails on military land may provide some long-term benefits for range management and public access for recreation, hunting, and subsistence resource harvesting. These actions will undergo further evaluation and review in future NEPA analysis.

Irreversible or Irrecoverable Commitment of Resources

For the alternatives, including the proposed actions, most resource commitments are neither irreversible nor irretrievable. Most impacts are short-term and temporary. Any noise effects on underlying land uses are reversible with suspension of the noise-generating flight operations. However, implementation of the proposed actions and alternatives would require the use of nonrenewable resources such as fuels used by aircraft and ground-based vehicles. Total fuel consumption would increase and this nonrenewable resource would be irreversibly lost.

Military energy consumption under the No Action Alternative would be expected to be comparable to any of the action alternatives, as several actions are designed to conserve fuel allocated to units for training by reducing the volume of fuel expended in transit. New capabilities to support weapons training with longer firing distances will not in itself stimulate additional manufacturing of these products. The JPARC proposals involving changes in airspace and air operations (i.e., Fox 3 MOA Expansion and new Paxon MOA, NJT, and UAV Access) would not consume minerals or additional energy. Several land-based radio and radar facilities will, however, be required by the Fox 3 MOA expansion/new Paxon MOA proposal, and they will use fuel and resources, although not to a degree considered significant.

No irreversible or irretrievable effects are expected for cultural resources or other natural resources, including land and water. There is the potential to increase the consumption of jet fuel by commercial carriers if changes in SUA interfere with commercial traffic. Considering those factors, the proposals would not significantly decrease the availability of minerals or petroleum resources or result in a substantial irreversible or irretrievable commitment of resources. Proposals involving weapons releases and new targets in existing impact areas may add slightly to the accumulation of unexploded ordnance (UXO), some of which may not be retrievable due to the character of the landscape. These actions would for the most part use existing impact areas and would not expand areas that would be irreversibly committed to supporting weapons training.

JPARC proposals involving weapons releases, temporary impact areas, and targets in existing impact areas may add slightly to the accumulation of UXO, some of which may not be retrievable due to the character of the landscape. With the exception of about 2 acres in north DTA-West, these actions would use existing impact areas and would not expand areas that would be irreversibly committed to supporting weapons training.

Physical development and ground disturbance is spatially limited for the six definitive proposals, so the potential for irreversible changes to the surface (affecting soils, vegetation, hydrology, and cultural sites) and subsurface resources, such as cultural sites, underground infrastructure, or minerals is minimal. The use of land as a surface danger zone to support weapons firing is fully reversible with the cessation of the activity and imposes no direct loss of productivity.

Projects involving a minor amount of development for infrastructure for the definitive proposals would use energy (fuels, electricity) and materials for components of new facilities. These would be consumed and not retrievable or reversible. Very small amounts would be needed to implement the definitive proposals. Clearing small areas for new target areas or firing ranges would remove native vegetation and/or wildlife habitat and have the potential to disrupt bird nesting activities. These minor modifications would occur primarily within training areas already used for similar purposes; this loss of resources

would not be expected to adversely affect native species and is very limited in extent. These areas could be revegetated when no longer needed as target areas; therefore, effects may be assumed to be reversible.

For the programmatic proposals, construction for new staging bases would consume additional energy to heat and maintain facilities. Construction of facilities, roads, and trails would disturb vegetation and habitats and could cause permanent loss of some fragile or sensitive habitats (such as wetlands or riparian areas). Construction of the ISBs would likely convert natural land into developed land. The value of these areas to support wildlife may be impacted in the long term, although restorative efforts could retrieve some of their natural functional quality within the developed area. These issues would undergo further evaluation and mitigations before decisions are made to implement them.

Secondary impacts to natural resources could occur from air operations as a result of an unlikely aircraft accident and/or fire. Fire can have short-term impacts to agricultural resources, wildlife, and habitat. Fire effects are not irreversible in a natural environment, and the increased risk of fire hazard due to JPARC operations is low. Secondary effects of aircraft overflight on wildlife behavioral activities have been known to occur in some circumstances, causing irreversible shifts in wildlife patterns. Coordination with USFWS for the JPARC proposals is ongoing and will identify appropriate permits, or permit extensions, and measures to avoid, reduce, and mitigate for potential effects to wildlife.

Energy Requirements and Conservation Potential

Minimal additional energy use would be required for the definitive proposals. Energy requirements would be subject to established energy conservation practices. The use of energy sources has been minimized wherever possible without compromising safety or training activities. No additional conservation measures related to direct energy consumption by the proposed activities are identified.

Natural or Depletable Resource Requirements and Conservation Potential

Resources that would be permanently and continually consumed by project implementation include water, electricity, natural gas, and fossil fuels. The amount and rate of consumption of these resources would not appreciably change from the No Action alternative under the six definitive proposals, and would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. The proposal to expand the Fox 3 MOA and create the Paxon MOA is intended in part to maximize effective fuel allocations to training units, providing more efficient use of resources.

Pollution prevention is an important component of existing management practices and mitigation of adverse impacts. These existing pollution prevention considerations are included for all proposals (Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, has information on existing measures and mitigations). Sustainable range management practices are in place that protect and conserve natural and cultural resources and preserve access to training areas for current and future training requirements while addressing potential encroachments that threaten to impact training area capabilities.

Chapter 1

Purpose and Need for the Proposed Actions

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTIONS

The *Environmental Impact Statement for the Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska* (the *JPARC Modernization and Enhancement EIS*) is prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 *et seq.*); the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500–1508); Executive Orders (EO) 11514 and 11991; and the Environmental Quality Improvement Act of 1970, as amended (42 U.S.C. 4371 *et seq.*).

The U.S. Departments of Army and the Air Force are the joint lead Federal agencies for this Environmental Impact Statement (EIS). The Environmental Analysis of Army Actions (32 CFR 651) and the Air Force Environmental Impact Analysis Process (32 CFR 989) have been used to prepare this EIS, in addition to the NEPA and CEQ regulations noted above. The Federal Aviation Administration (FAA) is a cooperating agency based in part on the U.S. Department of Defense (DoD) FAA Memorandum of Understanding (MOU) found in Appendix 7 of FAA Order 7400.2 that states, “When the DoD proposes that the FAA establish, designate, or modify SUA [Special Use Airspace], the FAA shall act as a cooperating agency for the evaluation of environmental impacts.”

The Army and Air Force organizations in Alaska responsible for the preparation of this EIS include U.S. Army Alaska (USARAK) and the 11th Air Force (11th AF), as coordinated by the Alaskan Command (ALCOM). ALCOM is a regional military command of the United States Armed Forces focusing on the State of Alaska and is a sub-unified command of the U.S. Pacific Command (PACOM).

The DoD Service components based within the State of Alaska face an exceptional challenge to meet compelling and increasingly urgent needs borne out of fighting wars. The Service units include the U.S. Air Force, Army, Coast Guard, Marine Reserves, and Navy. In an era of persistent combat operations, the DoD Services continue to generate new technologies, learn from battlefield experiences, update tactics, and train intensively to face a committed and agile enemy. Each of these challenges drives the purpose and the need for modernization and enhancements to the range and airspace infrastructure that replicate the modern battlefield for training and testing in Alaska – termed the Joint Pacific Alaska Range Complex (JPARC).

1.1 SCOPE OF THIS ENVIRONMENTAL IMPACT STATEMENT

JPARC is composed of Alaska’s military air, land, and sea areas. It must replicate realistic conditions for relevant combat training and testing of military systems to meet the requirements of the DoD units in Alaska. The vision for JPARC is a live-virtual-constructive¹ range for all Services that leverages Alaska’s unique attributes of space, air, land, and water to enable a full spectrum of 21st century Joint Interagency, Intergovernmental, and Multinational (JIIM) training while meeting current and future testing requirements. With these enhancements, JPARC can guarantee that Service members in Alaska

¹ Live-virtual-constructive refers to three modes of delivering training. Live training is actual on-the-ground or in-the-air training using the actual vehicles and equipment used in combat, and, in some cases, involves other live participants. Virtual training provides military personnel with a simulated experience using a computer or simulated environment to practice individual responses and skills. Constructive training is also a simulated environment that involves participants in the layers of command and control experienced in the battlefield environment.

receive critical training and testing in a manner that maximizes modern battlespace realism. The *JPARC Modernization and Enhancement EIS* will evaluate the reasonably foreseeable projects associated with this vision.

[Figure 1-1](#) and [Figure 1-2](#) show the location of the existing DoD Service bases, training areas, ranges, and SUA assets within the JPARC planning area. Most of the JPARC enhancements being proposed in this EIS are associated with the different types of SUA that are established within the National Airspace System for supporting military training activities. [Figure 1-3](#) provides a graphic depiction of the different SUA types that currently exist in Alaska along with a definition of each and their relationship to the JPARC airspace proposals. As noted in this figure, the *JPARC Modernization and Enhancement EIS* proposes changes or additions to Military Operations Areas (MOAs), Controlled Firing Areas (CFAs), and Restricted Areas. No changes are proposed for the Military Training Route (MTR) or offshore Warning Areas boundaries. Appendix D, *Airspace Management*, includes additional information pertaining to military training airspace uses.

The *JPARC Master Plan, August 2011 (JPARC Master Plan)* prepared by the Army and Air Force provides a strategic framework for JPARC enhancement and modernization, including a spectrum of enhancements from immediate and well-defined to future and conceptual. From this framework, this EIS focuses on enhancements that would provide Service-specific and joint training and testing objectives to meet immediate needs. The Master Plan and the screening process used to select proposed actions for this EIS are covered in more depth in Sections [1.4](#) and [1.5](#), respectively. Specific proposals, which represent a subset of actions identified in the Master Plan, are described in more detail in Chapter [2.0](#).

Because the proposed actions analyzed in this EIS are in various stages of development and have varying timelines for implementation, this EIS has two levels of decisions—programmatic and definitive.

Definitive (i.e., specific, project-level) decisions will be included in the Record of Decision (ROD) for proposed actions that have sufficient definition to allow detailed EIS analysis of potential discrete impacts. Decisions may incorporate specific measures identified in the analysis to avoid, reduce, or mitigate impacts. This EIS will serve to support the decisions for this class of actions.

Programmatic decisions will be included in the ROD for proposed actions that have adequate detail for analysis of a general capability, but have flexibility relative to project definition, location, timing, programming, funding, or level of use. Also, actions that are currently not identified for funding or that would take many years to implement may also be decided programmatically. This class of decisions would form the basis for “tiering” future environmental analyses once actions are more fully defined or are closer to the time of implementation.

The ROD for this EIS will include decisions on each proposed action, supported by analysis of implementing the proposed action either on its own or in combination with the other proposed actions.

This EIS does not include several objectives in the Master Plan that are not yet fully defined. While it is important to include all requirements (either known or conceptual) in planning the future vision for JPARC, it is premature to include projects in this EIS if there is not enough information to analyze their impacts. As these concepts gain more definition and traction, they will undergo an environmental impact analysis process in the future. Other projects in the Master Plan, generally smaller in scope, are currently undergoing evaluation and will be considered in separate NEPA documents with decisions expected prior or coincident to the completion of this EIS. These projects are considered in the cumulative impacts analysis in Chapter [4.0, Cumulative Impacts and Secondary Effects](#).

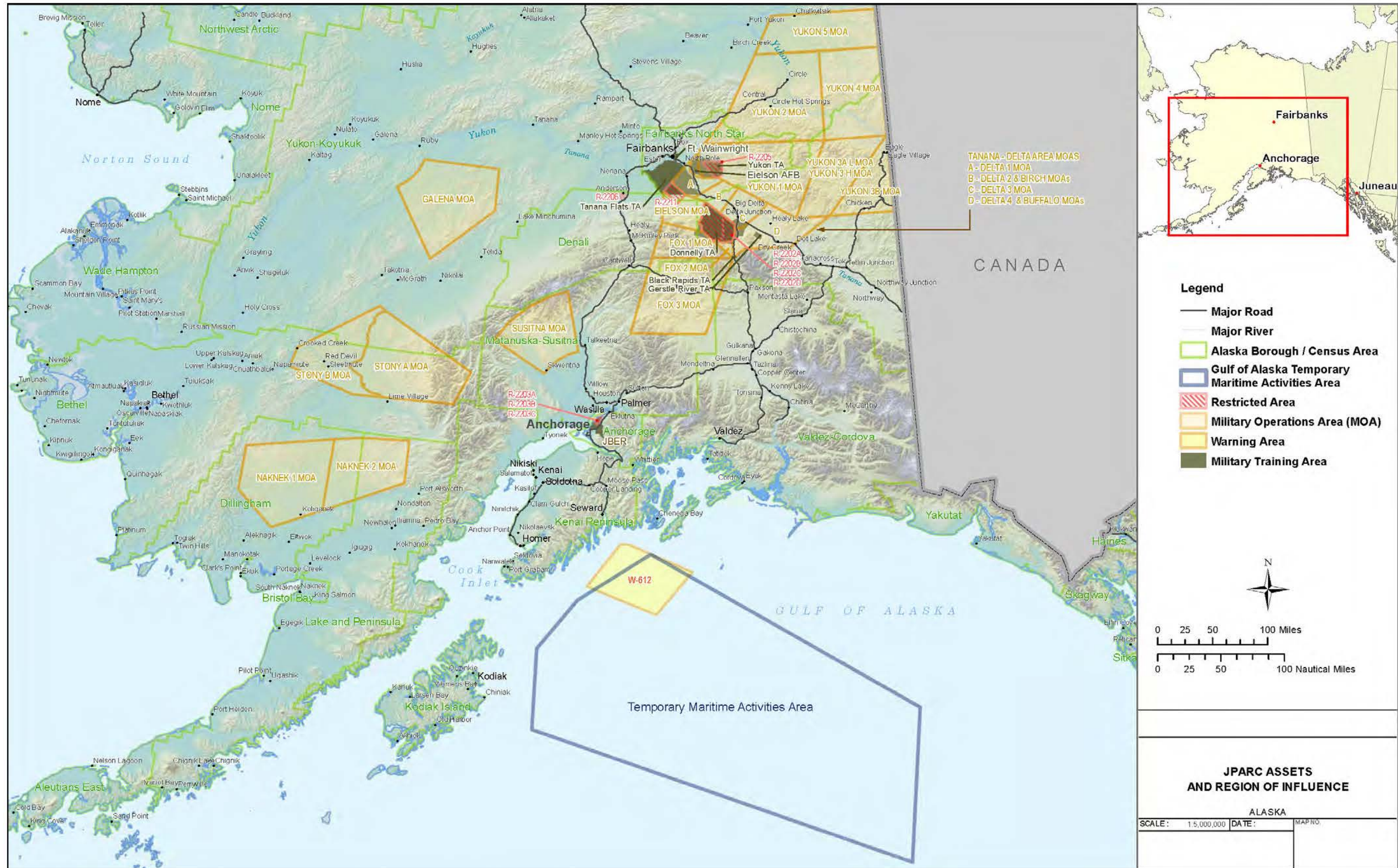


Figure 1-1. Joint Pacific Alaska Range Complex Assets and Region of Influence

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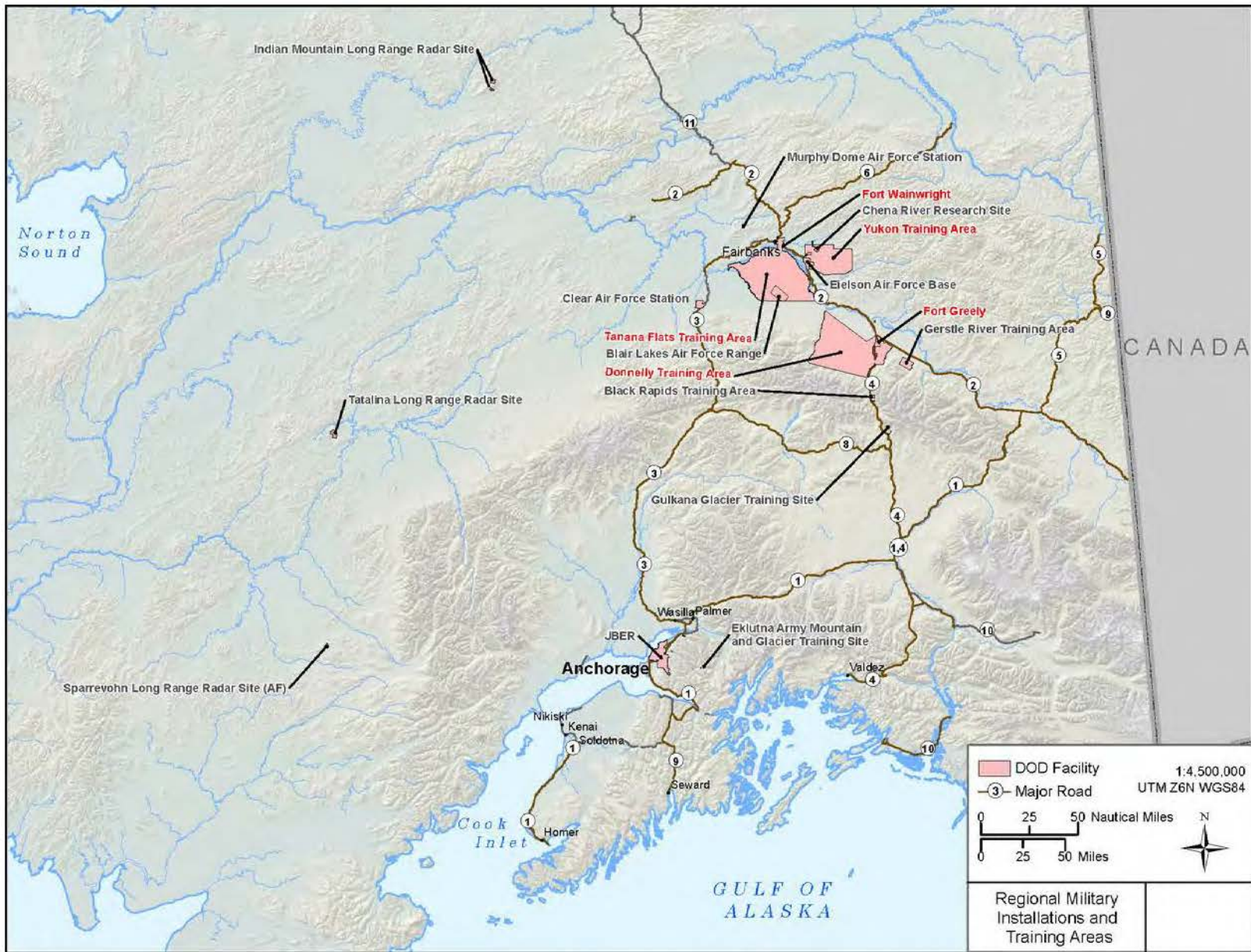


Figure 1-2. Regional Military Installations and Training Areas

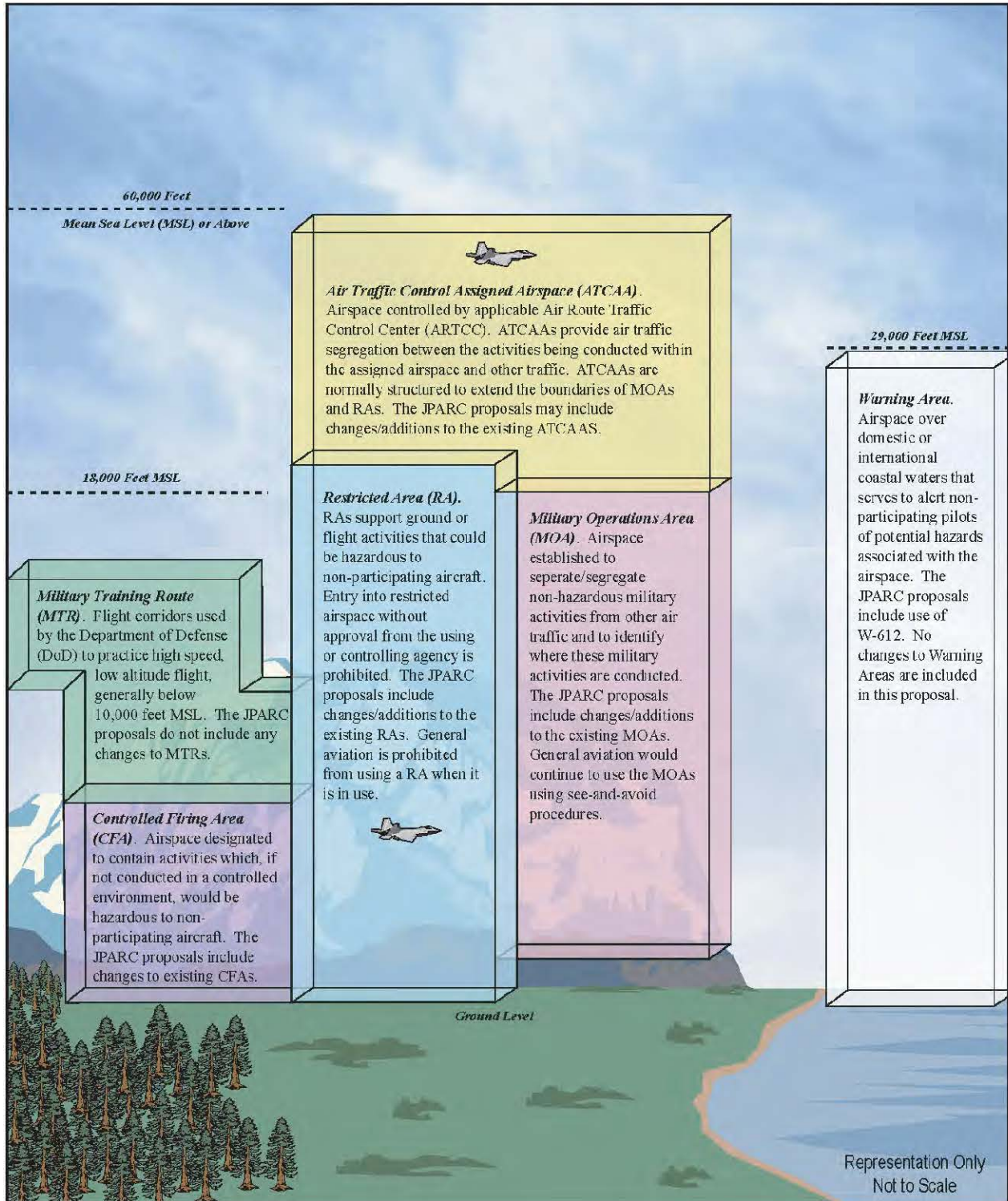


Figure 1-3. Description of Military Training Airspace Types in Alaska

1.1.1 Regional Initiatives Contributing to Training and Testing

The Master Plan references a number of recent and ongoing initiatives to meet the needs of various Services in the JPARC region. [Table 1-1](#) lists actions that are incorporated into the baseline or considered in the cumulative impacts analysis for this EIS (see Chapter [4.0](#)), depending on how recent the action was

Chapter 1 – Purpose and Need for the Proposed Actions
1.1 Scope of this Environmental Impact Statement

implemented. This list includes recent major decisions for the Delta MOA by the Air Force, for stationing and training USARAK aviation assets, and for Navy and joint force training in the Gulf of Alaska (GOA).

Table 1-1. Recent DoD Actions in the JPARC Region

Title	Reference	Status	Date	Ranges/Installations Affected
<i>F-22 Plus-Up Environmental Assessment (EA) Joint Base Elmendorf-Richardson, Alaska</i>	Air Force 2011-1	Final	July 2011	Joint Base Elmendorf-Richardson
<i>Resumption of Year-Round Firing Opportunities at Fort Richardson, Alaska EIS</i>	USARAK 2010-1	Draft	January 2010	Joint Base Elmendorf-Richardson
<i>GOA Navy Training Activities EIS/Overseas EIS</i>	Navy 2011	Final	May 2011	GOA Temporary Maritime Activities Area
<i>Range Complex Training Land Upgrades, Final Finding of No Significant Impact and Programmatic EA</i>	USARAK 2010-2	Final	March 2010	Army ground training areas near Joint Base Elmendorf-Richardson and Fort Wainwright
<i>Stationing and Training of Increased Aviation Assets Within USARAK EIS</i>	USARAK 2009-1	Final	September 2009	All military lands and installations in Alaska and other lands and airspace in Alaska that could be affected
<i>Establish the Delta MOA Complex EA</i>	Air Force 2010	Final	January 2010	Fairbanks Area of Interest
<i>Grow the Army Force Structure Realignment EA</i>	USARAK 2008-1	Final	September 2008	Joint Base Elmendorf-Richardson, Fort Wainwright, DTA
<i>DTA-East Mobility and Maneuver Enhancement EA/FONSI</i>	USARAK 2008-2	Final	May 2008	DTA-East
<i>Management of Nike Site Summit, Fort Richardson EA/FONSI</i>	USARAK 2008-3	Final	February 2008	Site Summit
<i>Relocation of the ANG 176th Wing to Elmendorf AFB, Alaska, EA</i>	Air Force 2007-1	Final	September 2007	Joint Base Elmendorf-Richardson
<i>Eielson AFB Infrastructure Development in Support of RED FLAG–Alaska EA</i>	Air Force 2007-2	Final	August 2007	Eielson AFB
<i>Construction and Operation of a Railhead Facility and Truck Loading Complex, Fort Wainwright, Alaska, EA</i>	USARAK 2007-1	Final	August 2007	Fort Wainwright
<i>Integrated Natural Resources Management Plan EA for U.S. Army Garrison Alaska</i>	USARAK 2007-2	Final	January 2007	Fort Wainwright Main Post, TFTA, YTA, DTA, GRTA, BRTA, and Whistler Creek Training Area; Joint Base Elmendorf-Richardson North Post, South Post and other small parcels
<i>Final EIS for the Construction and the Operation of a BAX and a Combined Arms Collective Training Facility Within U.S. Army Training Lands in Alaska</i>	USARAK 2006-1	Final	June 2006	Eddy Drop Zone at DTA-East

Table 1-1. Recent DoD Actions in the JPARC Region (Continued)

Title	Reference	Status	Date	Ranges/Installations Affected
<i>F-22 Beddown at Elmendorf AFB Alaska, EA/FONSI</i>	Air Force 2006-1	Final	June 2006	Joint Base Elmendorf-Richardson and regional airspace
<i>EA, Conversion of the Airborne Task Force to an Airborne Brigade Combat Team, Fort Richardson, Alaska</i>	USARAK 2005-1	Final	September 2005	Joint Base Elmendorf-Richardson
<i>Integrated Training Area Management Plan USARAK EA</i>	USARAK 2005-2	Final	June 2005	Joint Base Elmendorf-Richardson Fort Wainwright
<i>Transformation of USARAK Final EIS</i>	USARAK 2004-1	Final	2004	Fort Wainwright Joint Base Elmendorf-Richardson
<i>C-17 Beddown Elmendorf AFB, Alaska, EA</i>	Air Force 2004-1	Final	September 2004	Joint Base Elmendorf-Richardson
<i>Alaska Army Lands Withdrawal Renewal Legislative EIS</i>	USARAK 1999-1	Final	1999	YTA, DTA-East DTA-West
<i>Construct a CALFEX Range Facility at Fort Greely, Alaska</i>	USARAK 1999-2	Final	May 1999	Fort Greely
<i>Final Alaska MOA EIS</i>	Air Force 1997-1	Final	April 1997	Alaska MOAs (Special Use Airspace)

Key: AFB=Air Force Base; ANG=Air National Guard; BAX=Battle Area Complex; BRTA=Black Rapids Training Area; CALFEX=Combined Arms Live-Fire Exercises; DoD=U.S. Department of Defense; DTA=Donnelly Training Area; EA=environmental assessment; EIS=environmental impact statement; FONSI=Finding of No Significant Impact; GOA=Gulf of Alaska; GRTA=Gerstle River Training Area; JPARC=Joint Pacific Alaska Range Complex; MOA=Military Operations Area; TFTA=Tanana Flats Training Area; USARAK=U.S. Army Alaska; YTA=Yukon Training Area.

1.2 PURPOSE OF THE PROPOSED JPARC ACTIONS

This EIS describes and analyzes the potential environmental effects associated with the Air Force and Army proposals to modernize and enhance the JPARC in Alaska to best support current and future military exercises in and near Alaska.

JPARC modernizations and enhancements would enable the Army, Navy, and Air Force in Alaska to train both realistically and jointly, enabling military personnel the best chance of success in their mutually supportive roles in actual combat.

At present, the JPARC consists of all land, air, and sea training areas used by the Army, Navy, and Air Force (the Services) in Alaska. The Department of Defense (DoD) Directive 1322.18, *Military Training*, and Commander PACOM, Joint Training Program of Excellence, mandate that ALCOM, as DoD's regional joint headquarters in Alaska, develop, in coordination with the Services, a joint strategy to identify joint training opportunities in Alaska, maximize the utilization of training resources, and improve joint training.

The military currently uses the JPARC to conduct testing and unit-level training and to support various joint exercises and mission rehearsals. The JPARC was originally developed to support older and in some cases now-obsolete weapons and tactics. Its current configuration cannot fully meet the training requirement for military forces and exercises conducted in Alaska. The JPARC requires a more contemporary and versatile design and improved infrastructure to meet the present and future needs of the military. The proposed JPARC modernization and enhancements would enable realistic joint training and testing to support emerging technologies, respond to recent battlefield experiences, and train with tactics and new weapons systems to meet combat and national security needs.

The Alaska air, land, and maritime training areas were originally developed to support World War II and Cold War weapons, tactics, and techniques. As joint war fighting doctrine has developed since the end of the Cold War and after September 11, 2001, as new weapons systems and platforms come on-line, and as joint context training has evolved, JPARC, under its current configuration, can no longer fully meet the training and testing requirements for forces stationed in, and exercises occurring in and near, Alaska.

The proposed locations of the *JPARC Master Plan* objectives addressed in this EIS are shown in [Figure 1-4](#).

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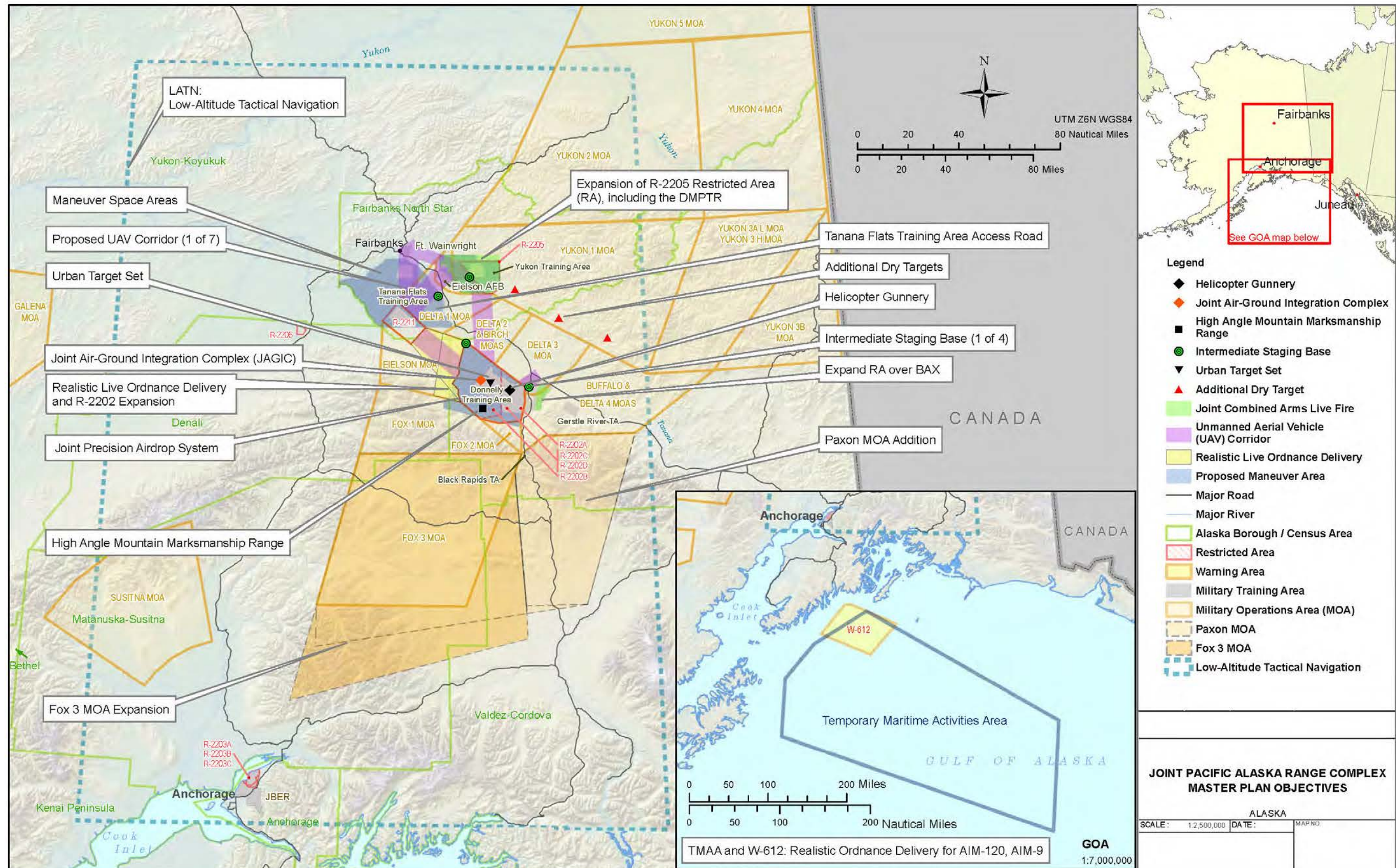


Figure 1-4. JPARC Master Plan Objectives

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1.3 NEED FOR ACTION

The four factors driving the need for enhanced and modernized training and testing facilities at JPARC are (1) technological advances, (2) advances in combat tactics and techniques and combat lessons learned, (3) the need to achieve diversified, realistic training in an efficient manner, and (4) the potential for synergy in meeting the physical needs of various Services and joint training. Each of these factors is described below.

1.3.1 Technological Advances

Technological advances in lethality, survivability, communications networks, and sensor capabilities continue to make Service members training in Alaska safer and more effective. These same advances stress the training infrastructure due to the extended weapons ranges and larger safety zones, increased demand for nighttime training, and expanded ground-maneuver and training space.

1.3.1.1 Increasing Demand for Large Operational Footprints

Due to advances in propulsion, guidance, and sensor capabilities, weapons currently in the inventory require longer distances and larger safety zones than are currently available. Training with new and current inventory weapons uses larger safety zones and footprints, excluding other activities in the surrounding airspace and on the ground. Technological advances increase the demand for large impact airspace, target/impact areas, and training areas for multiple, concurrent uses.

1.3.1.2 Aircraft and Threat Systems

Technological upgrades to aircraft, weapons, and command and control systems require modernization and enhancements of the facilities and assets that support training. These include adequate airspace, improved training target capabilities, new communications, and networking capabilities for “smarter,” more capable weapons. For example, current and emerging bombs and ordnance have ranges that exceed 100 nautical miles (NM) to engage ground threats, and air-to-air radars have more than doubled their coverage distance over the last few decades. Airmen and Soldiers need to be able to train in new air and ground vehicles, using weapons and equipment designed to address emerging threats. They also need to practice new tactics for identifying and engaging or addressing threats. The current arrangement of airspace and targets funnels aircraft into narrow areas, limiting the possible range of engagement scenarios and reducing the variety and realism for aircrew training. To create a training environment that mirrors combat, additional airspace that realistically integrates new threats and targets with modern aircraft and communication systems is required. Experience has demonstrated that the most realistic training provides pilots the ability to conduct multiple attacks from low altitudes and diverse directions.

1.3.1.3 Increasing Use of Unmanned Aerial Vehicles for Combat and Mission Support Roles

Unmanned aerial vehicles (UAVs) and remotely piloted aircraft (RPAs) have become a constant and critical component of modern combat operations. While UAVs and RPAs refer to the same or similar type of aircraft, UAV is a term generally used by the Army and RPA is a term generally used by the Air Force. This EIS will use UAV throughout the document, in accordance with Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms, As Amended Through 15 January 2012 (DoD 2010). UAVs must be integrated into the training so operators, commanders, and ground personnel are proficient in their operation, control, and employment of UAVs. UAVs are launched from outside restricted airspace via an FAA-approved Certificate of Authorization (COA). Otherwise, UAVs are confined to launch sites within a restricted area and have limited ability to transit to a noncontiguous military airspace where they are needed to train with and support realistic, joint training.

1.3.1.4 Advances in Night Vision Capabilities and Equipment

Enemy forces frequently use darkness to hide their activity. Advanced night vision capabilities and equipment have been developed to support combat operations. Supporting night flying operations during major joint forces exercises is critical. While night vision equipment capabilities have advanced, the available time to conduct such training has been reduced for the Air Force in Alaska. The ROD for the *Final Environmental Impact Statement, Alaska Military Operations Areas (Final Alaska MOA EIS)*, issued in 1997, allows the Air Force a maximum of two night training major flying exercises (MFEs) from February through March and October through November (Air Force 1997-1). It must be noted, however, that the Army in Alaska is in no way restricted from conducting air or ground training exercises anywhere in JPARC during nighttime hours. The 1997 ROD described above applies only to Air Force night flying exercises.

Air Force night aircraft training in JPARC is conducted currently during October, using nautical twilight as the requirement with the restrictions that MOA operations would cease before 10:00 p.m., and aircraft would land before 11:00 p.m., local time. The Energy Policy Act of 2005 extended daylight saving time from the first Sunday in April through the last Sunday in October to the second Sunday of March through the first Sunday in November. During these periods, the act shifts time forward an hour making sunset an hour later. This time shift effectively takes away an hour of darkness in March and October because the 1997 ROD still limits Air Force flying after 10:00 p.m. These factors, along with Alaska's geographic location and extended daylight lengths, limit the ability of the Air Force to conduct effective night MFEs between March 14 and October 10.

Additionally, pilots are required to keep night flight training current every 6 months. Currently, pilots must annually train in the Lower 48 or Hawaii to maintain night flying proficiency during the summer or fall months. If local pilots can maintain night flying proficiency locally in March, then they would still be qualified to fly at night in October without needing to train elsewhere.

1.3.1.5 Testing of New Weapons Systems

Advances in military technology first appear on test ranges. New technology must be proved on test ranges prior to being used by operational forces for training or combat. All of the technological advancements listed in the previous sections must be tested to ensure they are safe and perform as designed. Consequently, test mission technological advances are constantly pushing the boundaries of range and airspace capabilities. Responding quickly to these test program requirements benefits the warfighter, who will train with the technology within the ranges, training land, and airspace once it is available.

1.3.2 Advances in Combat Tactics and Techniques and Lessons from Combat

The DoD refines military tactics in response to lessons learned in training and combat operations, new equipment, and new tactics developed by current and potential adversaries.

1.3.2.1 New Tactics and Battlefield Operations Requirements

Training must mirror actual combat to the greatest extent possible. Airspace and ranges need to provide the opportunity for realistic, effective training. Lessons learned from recent combat operations show that battlefield engagement requires joint operation between air and ground forces. Preparing for this type of combat initially requires individual-unit training, followed by successively more-complex levels of joint training. Joint training with multiple Services requires large operational areas that replicate the size of a real battle area with all command and control arenas and layered levels included. This allows full

replication of command and control functions within the largest area of influence. Currently, the configuration of training airspace and target areas and the lack of year-round ground access within JPARC constrain this type of training for full-scale, complex joint force exercises with ground and air participants.

1.3.2.2 Training for New Tactical Threats for Fighter Aircraft

The F-22s based currently at Joint Base Elmendorf-Richardson (JBER) are the most advanced aircraft weapons systems in the world. Military pilots stationed in Alaska must train to defend against tactics specifically designed to defeat the F-22. Lessons learned from training show a need for high-altitude F-22s to train against low-level attacks from unanticipated directions. New tactics require engaging threat aircraft flying at low altitudes while F-22s maneuver at high altitudes. The lateral and/or lower altitude limitations of the existing MOAs and long distances from JBER do not provide the airspace environment required by JBER F-22 aircrews to practice realistic low-altitude threat engagements and avoidance tactics.

1.3.2.3 Training for Weapons Delivery

Lessons learned from recent combat operations demonstrate that addressing a target or participating in engagements from a limited number of directions places attacking forces at risk. Defending forces quickly become aware of attack angles and more capable of preventing a successful attack. The current JPARC airspace configuration results in repetitious, predictable, and rote execution of training that does not prepare attacking pilots for the unknowns and quick responses needed in combat. Proposed airspace permits a wider range of ingress and egress to practice a broader range of combat scenarios.

1.3.2.4 Complex Training in Urban Operations

Based on lessons learned in Iraq and Afghanistan, troops need more training in urban environments and situations, including the complex aspects of social interactions. The need for complex terrain goes beyond the limitations of a Military Operations on Urban Terrain (MOUT) site or a live-fire range. While necessary to train for the hazardous operations of actual combat, these facilities do not provide ground forces the training needed to face the challenges of actually operating among a human population that works and lives in a given area of operations.

1.3.2.5 Joint Training

Perhaps the most beneficial lesson learned is the value of joint training. Joint operations is the concept where different Services—Air Force, Army, Navy, and Marine Corps—work together to accomplish a battlefield mission. In the past, each Service trained separately, using its own funding and authority. However, complex conflicts are requiring more joint operations that necessitate training together prior to conducting actual combat operations.

1.3.3 Efficient Realistic Training

Realistic training with new tactics and weapon systems, which possess longer-range sensing and attack capabilities, allows fewer assets to cover larger areas. Concurrent with the requirement to cover larger areas is the need to reduce inefficient training activities such as transiting or excessive delays between active training. Realistic training must be efficient to achieve readiness within real-world resources constraints.

1.3.3.1 Efficient Use of Resources

Efficient use of resources is important for all military training, especially for the training engagements between the F-22s from JBER and the F-16s from Eielson Air Force Base (AFB). Current operable airspace for realistic threat engagement training is much further from JBER, which means more time and fuel are used for transiting from JBER and less time and fuel are available for the training event, thus limiting the effective mission time for aircrews from both staging bases.

1.3.3.2 Configuration of Training Airspace

Airspace is structured and scheduled in large blocks and does not allow flexibility to schedule smaller elements for concurrent uses (including non-military access). Also, training is currently event-driven and generally planned for discrete use of airspace and facilities at each of the training areas. Lack of interconnections between airspace elements and lack of a flexible structure limit opportunities for integrated, joint use of air and ground training assets in both discrete and large areas of operation. Expanding the existing airspace with the proposed new airspace would provide greater flexibility for scheduling use of this airspace for training and exercise activities. To maximize the efficient use of this airspace, these areas would be subdivided laterally and vertically, as appropriate, so that only those subareas and altitude strata are scheduled for use as required to support individual mission activities.

1.3.3.3 Extending Time-on-Range and Access to Training Areas

Time-on-range is directly related to length of time spent traveling from the staging location (e.g., cantonment, airfield, or Intermediate Staging Base [ISB]) to the training location. Time spent in transit subtracts from time available at the training site. Currently, the single ISB serving JPARC is located in the Donnelly Training Area (DTA) and is composed of relocatable facilities with limited functionality for billeting, operations and maintenance support, and mission planning. The current location only serves a small portion of JPARC training area assets. Ideally, ground troop staging areas are within 20 miles or a 2-hour commute of training areas. Longer commute distances result in less time-on-range to perform the required training activities.

1.3.4 Synergies

1.3.4.1 Common Infrastructure and Services

There are synergies to be gained by planning common infrastructure for the units and exercises in Alaska. Common communications networks, roads, and utilities lower the overall cost of operations and enhance the opportunities to train and test jointly. The principles of joint training can also be applied to Coalition Forces training. U.S. and Allied Forces must be able to integrate their combined strengths to defeat the enemy on the battlefield. It is critical to develop these integration skills in a controlled training environment. JPARC will provide a premier location to practice and perfect this skill set.

1.3.4.2 Replicating the Combat Environment

There is significant training value in replicating the joint, interagency, intergovernmental, multinational environment of combat. Interagency and intergovernmental operations refer to the coordinated efforts of multiple Federal organizations such as the Federal Bureau of Investigation working in conjunction with the DoD. Creating an environment where military servicemen and women have the opportunity to work with all of the same partners with whom they will go to combat is an important training tool.

1.3.4.3 Expanded Linked Training Opportunities

Because of the fully integrated nature of combat, it is important that units separated by geography are able to work together in training. This integrated training can be executed through a live-virtual-constructive environment described above. This environment allows real people executing operations (live) to interact with real people executing simulated operations (virtual) and completely simulated operations (constructive). This capability allows units to train with simulated units or geographically separated units as though they were conducting actual combat operations together.

1.4 JPARC MASTER PLAN

The *JPARC Master Plan* developed by the participation and interest of numerous military and non-military stakeholders, is a living document that will continue to respond to the evolving nature of military requirements in Alaska. The *JPARC Master Plan*:

- Identifies the joint benefits and synergies that would accrue to all planning participants involved in test and training operations in Alaska.
- Identifies the many actions regularly undertaken to enhance individual Service capabilities; these actions should continue and be integrated into joint capabilities, as required.
- Recommends ways that the individual Services and other involved proponents could avoid conflicting or duplicative exercises and training requirements in order to optimize collective Interservice efforts.
- Provides a means to coordinate and consolidate most of the training and testing requirements for military units and DoD-sponsored exercises in the State of Alaska; and
- Provides a strategy to coordinate and deconflict military range and airspace use, modernization, and enhancements.

Based on these testing and training requirements, the *JPARC Master Plan* identified, described, and approved 21 distinct objectives for the modernization and enhancement of JPARC. These objectives include existing planning efforts, new actions, or the identification of potential future actions that require additional planning.

[Table 1-2](#) identifies the various military and non-military stakeholders involved with or expressing interest in the JPARC master planning process either as a user, a stakeholder, or as a potentially affected entity. It is anticipated these organizations will continue to participate in the NEPA process for the *JPARC Modernization and Enhancement EIS*.

Table 1-2. Key JPARC Stakeholders

Area	Military	Non-military
Federal	Office of the Secretary of Defense Joint Chiefs of Staff – Air Force, Army, Navy, Marine Corps Special Operations Command U.S. Strategic Command Army Forces Command Army Training and Doctrine Command U.S. Fleet Forces Command Air Combat Command Air Mobility Command U.S. Army Test and Evaluation Command North American Aerospace Defense Command (NORAD) U.S. Army Corps of Engineers, Alaska District U.S. Army Installation Management Command (IMCOM) Missile Defense Agency, Space and Missile Defense Command	State of Alaska U.S. Congressional Delegation U.S. Federal Aviation Administration (FAA) U.S. Department of Homeland Security U.S. Environmental Protection Agency (EPA), Region 10 U.S. Fish and Wildlife Service National Marine Fisheries Service National Oceanic and Atmospheric Administration U.S. Forest Service U.S. Department of the Interior Bureau of Indian Affairs Bureau of Land Management National Park Service Advisory Council on Historic Preservation Federal Emergency Management Agency (FEMA), Region 10
Pacific Region	U.S. Pacific Command Pacific Air Force 13th Air Force U.S. Army IMCOM, Pacific Commander, U.S. Third Fleet Commander, U.S. Pacific Fleet U.S. Marine Forces Pacific U.S. Special Operations Command Pacific U.S. Army Pacific U.S. Coast Guard Pacific Area	Not applicable
State/Local	11th Air Force: 611th Air Support Group, 3rd Wing, 673rd Air Base Wing at Joint Base Elmendorf-Richardson (JBER) 354th Fighter Wing at Eielson Air Force Base 11th Air Force/Alaskan NORAD Region U.S. Army Alaska U.S. Army Garrison Fort Greely U.S. Army Garrison Fort Wainwright U.S. Army Cold Regions Test Center Alaska National Guard Alaska Air National Guard Alaska Army National Guard 100th Missile Defense Brigade U.S. Marine Corps Reserve Unit/JBER U.S. Coast Guard District 17	Governor of Alaska Anchorage Air Route Traffic Control Alaska State Historic Preservation Officer Alaska Department of Environmental Conservation (ADEC) Alaska Department of Natural Resources Alaska Department of Fish and Game Federal Aviation Administration, Alaska Region Alaska Department of Military and Veterans Affairs Alaska Department of Transportation Alaska Railroad Corporation Alaska Division of Homeland Security and Emergency Management Alaska Native Tribes Alaska Boroughs

1.5 ACTIONS IDENTIFIED DURING THE PLANNING PROCESS

The *JPARC Master Plan* outlines a process designed to bring together the various military and civilian stakeholders in Alaska to conduct a thorough investigation of JPARC baseline conditions, identify Army and Air Force training requirements, develop a long-term vision for JPARC, and conduct a collaborative approach for the identification of and approval for the JPARC modernization and enhancement strategies and objectives.

The following criteria were used to identify objectives guiding JPARC future development:

- Universal Joint Task Lists for exercises and Mission Essential Task List/Ready Aircrew Program for units
- Future critical capabilities required at JPARC identified and developed via the master planning process
- Physical space and time elements needed to accomplish training tasks for current requirements and future critical capabilities
- Projects to modernize and enhance the training environment for comprehensive and complete joint-use capability

1.5.1 List and Description of Master Plan Actions

The following sections briefly describe the discrete objectives identified in the Master Plan.

1.5.1.1 Fox 3 Military Operations Area Expansion

Modification to the Fox 3 MOA through expanding and lowering the airspace is needed to increase the operational arena for several purposes. This Air Force proposal addresses two of the Master Plan objectives: (1) to improve the low-altitude threat training for fifth-generation fighters and (2) to lower the energy costs for aerial training. As the fifth generation of U.S. fighters (F-22s and F-35s) are developed, fielded, and deployed into combat, pilots will need to practice skills and tactics in these aircraft. Experience has shown that a critical tactic for combat success is acquiring threat aircraft maneuvering at low altitudes. This proposal would also provide a functional airspace that is closer to JBER for training by the Air Force, allowing aircrews to spend more time executing their training objectives and less time in transit. It could also provide the benefit of lower fuel consumption and lower energy costs by centralizing training between 3rd Wing defensive aircraft from JBER and aggressor aircraft from the 354th Fighter Wing at Eielson AFB. This new structure would enhance the realism of the training by allowing both the defensive and aggressor aircraft to replicate tactics expected from adversaries during actual combat missions.

1.5.1.2 Paxon Military Operations Area Addition

This action is being proposed in conjunction with the proposed Fox 3 MOA expansion described in Section [1.5.1.1](#). This Air Force proposal addresses the *JPARC Master Plan* objective of enhanced air-to-ground flexibility. This proposal would provide additional airspace in support of RED FLAG–Alaska exercises, increasing maneuverability and dry target sites for conducting more-realistic training scenarios. This proposal will enhance pilot training by providing multiple approaches to target areas used during MFEs. The proposed Paxon MOA, located beneath the existing Paxon Air Traffic Control Assigned Airspace (ATCAA) and east of the Fox 3 MOA and south of the Yukon and Delta MOAs, could be used in conjunction with the current and proposed Fox MOAs to provide capacity and flexibility for current and future training maneuvers and opportunities for multiple, concurrent uses. This new structure could provide a central location for enhanced training between aircraft from JBER and Eielson AFB.

1.5.1.3 Realistic Live Ordnance Delivery

The Realistic Live Ordnance Delivery (RLOD) proposal would expand restricted airspace, R-2202 and establish controlled access to underlying land for intermittent use as a weapon danger zone (WDZ) to accommodate larger safety footprints associated with new Air Force fighter aircraft and munitions with a wider employment range for current munitions. This capability would increase realism and provide diversity for practicing deliveries of a variety of ordnance using several release profiles that are currently

constrained by the existing restricted airspace. The use of live and inert ordnance for air-to-ground munitions training would be executed as part of both individual pilot training and joint training with other air and ground units, including MFEs. Existing targets would be utilized within existing ordnance impact areas to allow participation with other units on the ground and to provide a more-realistic, combined-arms training experience in Alaska.

This Air Force proposal requires a multi-axis approach from a MOA to a restricted area of sufficient size to contain the WDZ and release point. This airspace would also provide UAV access and a loiter area clear of the run-in lines for the targets. The target set requires only a few acres within a current impact area on existing DoD land used for this purpose. When the restricted airspace is active, the user must be able to exclude nonparticipating persons and aircraft. The location of this target set would minimize flying distance to and from both JBER and Eielson AFB, because aircraft from both installations require this type of training, as do participants in MFEs.

1.5.1.4 Joint Combined Arms Live Fire

The Joint Combined Arms Live Fire (JCALF) concept is a critical component of Army training. This exercise activity involves multiple combat units operating together to accomplish the same mission objectives. For example, armed reconnaissance helicopters, such as OH-58Ds, and ground forces practice maneuvering together against the same objectives. Also, Air Force A-10s could provide joint support during the JCALF training exercises. This type of joint training is a critical step between individual and small-unit training and operational capability within a joint team structure.

This Army proposal would use the Battle Area Complex (BAX)/Combined Arms Collective Training Facility located in DTA-East and the Digital Multi-Purpose Training Range (DMPTR) located in the Yukon Training Area (YTA) near existing restricted areas. It is noted also that both proposals will remain entirely within existing Army lands withdrawn for military use. Each will be individual and independent proposed actions in this EIS to modernize and otherwise enhance JCALF capability in response to military requirements. This proposal would build on existing facilities and would expand restricted areas to allow ground and air forces to work together. Existing use of the BAX and DMPTR areas is currently very constrained in terms of the types, levels, and intensity of training that can be undertaken. For instance, such constraints preclude the Army from being able to fully conduct helicopter gunnery training, fire on existing targets at longer ranges, or integrate all types of current weapons during the same exercise.

1.5.1.5 Night Joint Training

In combat situations, conducting Air Force flight operations during nighttime hours of limited visibility using advanced night vision technology gives the U.S. military a distinct advantage. Training with this equipment can only be conducted at night. As described in Section [1.3.1.4](#), previous decisions and daylight savings limit the capability to conduct night MFEs during the exercise season. This Air Force proposal will allow an increase in night training opportunities.

1.5.1.6 Unmanned Aerial Vehicle Access

Restricted areas or other FAA-designated airspace are required by the Army and Air Force to transit UAVs from their launch points to the individual range areas in which they must operate. The UAVs have emerged as a critical tool for reconnaissance information gathering, surveillance, and other activities within conflict zones. It is essential to integrate them with other forms of military activities to ensure seamless operations. All Services operate with UAVs in combat every day from small hand-launched platforms like the Raven, to globally operated intelligence platforms like the RQ-4 Global Hawk.

Proficiency training for operators and employment training for strategists is increasingly important as UAVs assume a greater role in military operations. UAVs have been used by the Army to a limited extent during recent RED FLAG–Alaska exercises. It is planned that UAV participation during the large force exercises (LFEs) in Alaska by the Army and Air Force will increase as new UAV platforms are brought on-line for use in JPARC and become an integral part of MFEs and other training activities.

UAV access would provide flexibility for use of JPARC by all types of aircraft, including emerging unmanned aircraft, which will be more prevalent in all aspects of military operations in the future. UAV access into these areas and long ranges would allow Service members to train in the same manner as they would operate in a deployed environment. This access is also required for the Cold Regions Test Center (CRTC) to fully test UAVs.

1.5.1.7 Enhance Ground Maneuver Space

This objective is to enhance Army maneuver space and achieve expanded capabilities by creating year-round road access and improving internal circulation routes for training areas near Fort Wainwright. The Army training requirements stipulate a brigade-sized maneuver exercise. As advances in weapon systems occur, the mobility and range of weapons increases, the required land space for safe, effective training also increases. Due to lack of year-round access to ground training areas, deploying units must travel to training areas outside of Alaska to conduct large scale combined arms training. Providing an area with adequate maneuver space, within existing JPARC ground training areas, will meet current and future needs for combined arms exercises, save transportation costs and increase pre-deployment family time.

The USARAK brigade equivalents include the Stryker Brigade Combat Team (SBCT), Airborne Brigade Combat Team (ABCT), Combat Aviation Brigade, and Engineer Brigade (EB). While the current focus of each brigade is to support Army Force Generation for current operations, all of the brigades have training requirements for a brigade-sized maneuver exercise. As technology drives the mobility and effective range of systems farther, the operational footprint of each of these brigades will continue to increase. Providing access to maneuver space within existing JPARC ground training areas would meet current and future needs for Joint Service training. Additional maneuvers within existing JPARC ground training space would allow for larger full-scale exercises with ground combat troops located in nodes across several training areas within a wide, networked operational arena. Currently, USARAK units must deploy to other parts of the United States to conduct training on a large scale prior to deployment because the available Alaska ground maneuver areas are not accessible by road year-round. Improving year-round road access to existing training areas, along with internal circulation networks, would effectively enhance the maneuver space available to USARAK.

One of the first actions that would be required for achieving expanded capabilities is to improve road access to training areas proximate to Fort Wainwright. Access to other parts of Tanana Flats Training Area (TFTA), DTA, and YTA will also require additional study. A programmatic evaluation of the environmental resources and training requirements will identify corridors for road access and circulation throughout these existing JPARC ground training areas.

1.5.1.8 Tanana Flats Training Area Roadway Access

This Army objective would provide year-round road access to the TFTA to support its planned use as a joint live-fire and maneuver training area. U.S. Army Garrison Fort Wainwright, Alaska (USAG-FWA) conducted the *Range and Training Area Feasibility Study for Tanana Flats and Donnelly Training Areas, Fort Wainwright, Alaska, December, 2009* (HDR 2009) and a *Geotechnical Feasibility Study, Tanana Flats Training Area, Fort Wainwright, Alaska, September, 2009* (Shannon and Wilson 2009). These studies were undertaken to support the planning and feasibility of developing TFTA, under the

jurisdiction of USAG-FWA, into a joint live-fire and maneuver training complex for year-round training operations. The overall goal of these project efforts were to assist USAG-FWA with the necessary planning, programming, and estimating documents for the development of the training areas.

The initial emphasis is on transportation, with a focus on identifying realistic access routes to the training areas. The primary purpose of the feasibility study and geotechnical data collection efforts was to assist in the selection of preferred travel routes to provide access from the Tanana River Bridge over the Tanana River in the Salcha area to the high ground around Blair Lakes in TFTA. The Alaska Railroad Corporation is the responsible organization for the construction of the bridge. When construction is completed, the bridge will connect the highway system to extensive military training grounds south of the river. It is part of the larger Northern Rail Extension project.

Access routes to the training areas will be studied along a spine following the proposed Northern Rail Extension project alignment from the Tanana Crossing toward the southeast, along the Tanana River to the corner of DTA at the Little Delta River. From the spine, routes were considered to various training areas to the south including a spur to the west for a ground corridor to Blair Lakes, continuing on to TFTA and Blair Lakes Impact Area.

The primary purpose of the road is to provide year-round training access to the Blair Lakes area. The desired road-top width is 35 feet with an aggregate-surface, to allow two Stryker vehicles to pass. The Strykers are a family of eight-wheeled all-wheel-drive vehicles with a gross weight on the order of 36 to 41 kips or more, depending on equipment and armoring (kips are a non-SI [International System of Units] unit of force that equals 1,000 pounds-force used primarily by architects and engineers to measure engineering loads).

1.5.1.9 Complex Urban Terrain

Complex urban terrain training incorporates the physical attributes of training for combat in an urban environment with human interactions. While the terrain used in MOUT training needs to be relevant, the significant aspect of the complex urban terrain are human interactions. Operating within the domain of supporting, indifferent, and opposing human networks and the associated civil affairs and information operations is critical for ground forces. MOUT sites enhanced with human networks would increase training realism and fill a growing training gap in this environment. One concept for meeting this need is to use realistic urbanized areas in training events. A simple event may involve a convoy of vehicles leaving a training area (such as an existing BAX), transiting through a non-military landscape (on preselected roads) and re-entering the training area to complete the mission. Another concept could involve role-playing civilians to enact the activity and random interface of a civilian community.

1.5.1.10 Joint Air–Ground Integration Complex

The digitally integrated Joint Air–Ground Integration Complex (JAGIC) is the capstone capability for joint and combined live training. This Army facility is planned to be an enhanced Digital Air–Ground Integration Range to allow the full spectrum of Army combined-arms training capabilities to train with the Air Force, Navy, and Marine air-to-air and air-to-ground units, along with Special Operations Forces. It is noted that facility design and construction guidelines will be based on Training Circular 25-8, *Training Ranges*, May 2010 (Army 2010). The proposed facility would provide a year-round, comprehensive, and realistic aviation training range facility for seven combat maneuver battalions training 10 to 14 days annually. The primary focus of the range is to train rotary-wing aviation units and crews on the skills necessary to detect, identify, and effectively engage stationary and moving infantry and/or armor targets that have been strategically placed in a tactical arrangement. Company Combined

Arms Live-Fire Exercises and fully integrated advanced ordnance may be fired by mechanized infantry and armor crews and units.

The JAGIC would provide adequate airspace and controlled-access land for the safety buffers needed to train with a full range of munitions that may be used in combat. The JAGIC would require additional targets to support Air Force, Navy, and Marine aviation elements during joint training exercises. The facility includes service roads, range support buildings, parking area, range tower, convoy live-fire route, urban centers, and an area for Service rocket training. Most of the targets, the convoy live-fire route, and the urban facilities would be concentrated in a 9-by-12-kilometer (km) area within the range. Unlike a Digital Air–Ground Integration Range, this range would support aerial target engagements with onboard aircraft weapons, aerial reconnaissance, joint tactical engagements, door gunnery training, convoy operations, and training against targets located in an urban environment. Mock urban village centers and adjacent rural areas would be configured to permit simultaneous, integrated operations by air and ground-based forces.

The JAGIC would combine several capabilities and training requirements in urban areas to meet the training needs emerging from lessons learned from global combat zones. Increasing capacity to serve this need is critical for success in modern combat. It would support integrated joint training within and across the Services and increase training effectiveness.

1.5.1.11 Intermediate Staging Bases

Reducing travel distances between Army staging locations and training locations would allow more effective on-range training time and lower energy costs for transiting to remote JPARC ground maneuver areas, especially for units that must convoy vehicles and equipment. In addition, for maximizing training time for Soldiers, travel time to training areas is a key factor. This is particularly important for units that convoy their vehicles and equipment from billeting areas (military living quarters) to various training ranges and maneuver areas around Fairbanks and Delta Junction. Locating ISBs near key insertion points will place Soldiers closer to their training. Distributed ISBs will also allow more maintenance and logistics support without the need to return to the main cantonment area. ISBs are needed with a combined capacity for up to 2,500 Soldiers at four locations, one ISB supporting 1,000 Soldiers and three ISBs supporting 500 Soldiers. They would support large-scale exercises and other training involving combinations of units, including Brigade Combat Teams, Engineer Brigades, and functional brigades.

Strategic placement of ISBs would greatly increase time spent on the range during combat maneuver training, vastly improving the effectiveness of training. The ISBs would also serve as key locations for accommodating surges in personnel numbers during large exercises.

1.5.1.12 Missile Live-Fire for AIM-9 and AIM-120

Live-fire activities using the AIM-9 and AIM-120 missiles would be executed as part of both individual pilot training, MFEs, and joint training with other air and ground units. The Air Force currently trains in the GOA airspace; however, the proposed action would permit Air Force fighter aircraft to fire these missiles in the GOA, as is currently done by the Navy. This would involve about 100 events annually for live missile system deliveries. Currently, Air Force pilots must be deployed to Florida to conduct such training.

1.5.1.13 Low-Altitude Tactical Navigation Training

Advances in night vision technology allow aircrews to operate more safely at lower altitudes to avoid being shot down by enemy air defenses. To train more effectively with this technology, it is proposed

that the floor of the existing low-altitude tactical navigation (LATN) area be lowered from 1,000 feet above ground level (AGL) to 400 feet AGL for night operations (except over Denali National Park). This would greatly improve training effectiveness by allowing aircrews to use their night vision equipment to its full capacity.

1.5.1.14 Urban Target Set

The urban target set is a specific target set for pilot training to the specialized targeting procedures and tactics associated with conducting Close Air Support in an urban environment. The target set would need to be sturdy enough to absorb impacts from inert munitions and sized to present the appropriate tactical challenge of discriminating targets among background clutter, such as foliage or urban areas. Additionally, the target set would need to present the tactical flexibility to the pilots approaching from a wide range of run-in headings. The target set would be used by aircraft from Fort Wainwright, Eielson AFB and JBER and should be centrally located. There may be additional training value for ground controllers to observe and direct the bombing from the ground. The urban target set must be within a restricted area because of the live drops from the aircraft. The restricted area covering the target would need to be large enough or have adjoined MOAs to provide multidirectional approach. The range requires about 30 acres for construction of a mock-urban environment of about 75 buildings and additional acres for the WDZ. The entire footprint for the urban target set will be developed as future planning and development is completed.

1.5.1.15 Helicopter Gunnery

A helicopter gunnery range supports mandatory gunnery training for Army and Air Force aircrews to participate in larger exercises and rehearse and validate the operational readiness of the helicopter weapons systems. The Army and Air Force would use this facility to conduct such exercises during RED FLAG–Alaska and NORTHERN EDGE and for aircrew proficiency training. Currently, USARAK units routinely deploy outside Alaska to other Army ranges to conduct this type of training.

1.5.1.16 Additional Dry Targets

Dry targets are approximately 1-acre sites where Air Force pilots can practice bombing tactics without releasing any ordnance. The sites usually contain a static replica or nonfunctional threat vehicle, along with a functioning air defense threat emitter, such as a simulated ground-based missile. Dry targets are used during a variety of military training exercises, including LFEs and joint context home station training. The dry targets emit high-fidelity threat signals to aircrews, replicating combat conditions. Engagement scenarios provide aircrews with realistic situations while meeting their individual crew training requirements. Dry threats are used during RED FLAG–Alaska and NORTHERN EDGE and by the 3rd Wing. The projected utilization for dry targets would be six times annually, 10 days each. The targets must be integrated into the working airspace (i.e., restricted area or MOA) so as to fit into the tactical scenario of RED FLAG–Alaska and NORTHERN EDGE. These targets would supplement live drop targets but would not completely replicate their training value. The targets would be placed in a central location to the Fox and Yukon MOAs. Placement near the current live drop targets in YTA or DTA would negate any training value.

1.5.1.17 Joint Precision Airdrop System Drop Zones

The Joint Precision Airdrop System (JPADS) is a system of global positioning system (GPS) receivers and steerable parachutes that is revolutionizing the way the military executes aerial resupply. JPADS are dropped from large Air Force cargo aircraft such as the C-17 Globemaster III and descend into dangerous or remote landing zones to resupply ground troops. JPADS is capable of hitting specified drop zones

(DZs) from higher altitudes than is currently allowable at JPARC with critical resupply payloads. Pilots will need training under realistic and varied conditions. While still in development, these systems are being used to resupply troops conducting combat operations in the field. As they develop, regular training will continue to be critical to success in combat.

1.5.1.18 High Angle Mountain Marksmanship Range

Recent conflicts in mountainous terrain have demonstrated the Soldiers’ need to effectively fire small arms and indirect fire weapons systems in mountainous terrain. In a mountain combat scenario, Soldiers employing common small arms must account for drastic differences between the altitude of the firing point and the target. This is unusual training for most Soldiers and must be conducted prior to deployment. High Angle Mountain Marksmanship Range (HAMMR) training includes the ability to shoot at elevated and depressed muzzle angles of approximately 45 degrees. The HAMMR would provide the type of training necessary for small arms and indirect fire battles in mountainous terrain. The Army typically trains for this scenario in 7- to 10-day intervals, ranging from individual to collective live-fire exercises. The Army will continue to use available mountainous terrain under restricted airspace to support training for individual and collective live-fire exercises.

1.5.1.19 Digital Range Connectivity

The live-virtual-constructive architecture is dependent on data links to the ranges where the training will take place. It is necessary that support infrastructure for ground ranges (e.g., ISBs) and support infrastructure for airspace (e.g., scoring equipment, threats, and air combat maneuvering instrumentation [ACMI]) are connected digitally. This objective highlights the importance of creating and/or maintaining the data links between all of the ranges, maneuver areas, and support areas.

[Table 1-3](#) summarizes the projects and their relationship to JPARC needs discussed in Section [1.3](#), Need for Action.

Table 1-3. Projects As They Relate to JPARC Needs

Proposed Action	Technological Advances	Advances in Combat Tactics/Techniques	Training Efficiency	Synergies
Fox 3 Military Operations Area Expansion	Not applicable	Realistic threat tactics	Centralizes aerial training against aggressors	Replicates operational environment
Paxon Military Operations Area Addition	Not applicable	Provides operational flexibility for major flying exercises	Centralizes aerial training against aggressors	Replicates operational environment
Realistic Live Ordnance Delivery	Responds to extended weapons ranges	Allows aircraft to train with longer standoff distances	Allows units to stay within the JPARC to train	Allows joint training in single location
Battle Area Complex Restricted Area Addition	Not applicable	Allows units to conduct fully integrated training	Allows units to stay within the JPARC to train	Allows joint training in single location

Table 1-3. Projects As They Relate to JPARC Needs (Continued)

Proposed Action	Technological Advances	Advances in Combat Tactics/Techniques	Training Efficiency	Synergies
Expand Restricted Area R-2205	Not applicable	Allows units to conduct fully integrated combined arms training	Allows units to stay within the JPARC to train	Allows joint training in single location
Night Joint Training	Responds to the advances in night vision devices	Not applicable	Allows units to stay in JPARC to train	Not applicable
Unmanned Aerial Vehicle Access	Responds to the advances in UAVs	Allows units to train with UAVs prior to combat	Creates airspace for UAVs to participate in multiple events	Replicates operational environment
Enhanced Ground Maneuver Space	Not applicable	Allows units to operate across greater distances	Allows units to stay within the JPARC to train	Benefits capability for integrated joint training with networked nodes of operations spanning greater distances
Tanana Flats Training Area Roadway Access	Not applicable	Allows units direct, year-round access to ground training areas across the Tanana River	Allows units to stay within the JPARC to train on a year-round basis	Benefits capability for integrated joint training with networked nodes of operations spanning greater distances on a year-round basis
Complex Urban Terrain	Not applicable	Allows units to train within realistic cities prior to combat	Allows units to stay in Alaska	Not applicable
Joint Air-Ground Integration Complex	Not applicable	Allows units to conduct fully integrated training	Allows units to stay within the JPARC to train	Not applicable
Intermediate Staging Bases	Not applicable	Allows training for extended logistical support	Provides greater training time by reducing travel and administrative time	Improves logistics and time-on-range potential for all ground-based troops for training and exercises
Low-Altitude Tactical Navigation	Responds to the advances in night vision devices	Provides accurate and safer night mission rehearsal	Allows units to stay in Alaska	Not applicable
Missile Live-Fire	Not applicable	Not applicable	Allows units to stay within the JPARC to train	Not applicable

Table 1-3. Projects As They Relate to JPARC Needs (Continued)

Proposed Action	Technological Advances	Advances in Combat Tactics/Techniques	Training Efficiency	Synergies
Urban Target Set	Not applicable	Allows units to conduct fully integrated training	Not applicable	Not applicable
Helicopter Gunnery	Not applicable	Allows units to conduct fully integrated training	Allows units to stay within the JPARC to train	Not applicable
Additional Dry Targets	Not applicable	Allows units to conduct fully integrated training	Not applicable	Expands operations area and allows more diverse scenarios for exercises and joint training
Joint Precision Airdrop System Drop Zones	Responds to the advances in JPADS technology	Not applicable	Not applicable	Not applicable
High Angle Mountain Marksmanship Range	Not applicable	Allows units to conduct training in mountainous terrain	Allows units to stay within the JPARC to train	Not applicable
Digital Range Connectivity	Not applicable	Not applicable	Allows units to stay within the JPARC to train	Necessary for LVC training

Key: JPADS=Joint Precision Airdrop System; JPARC=Joint Pacific Alaska Range Complex; LVC=live-virtual-constructive; UAV=unmanned aerial vehicle.

1.5.2 Screening Criteria to Categorize JPARC Master Plan Actions for this EIS

The *JPARC Master Plan* contains all known independent Army and Air Force or joint projects that could be identified for the foreseeable future. The degree of information for these projects varies from substantial detail to a concept that is thought to generally benefit joint training at JPARC if implemented. Four criteria were developed as a tool to gauge which projects would be considered as definitive and which would be considered programmatic for this EIS analysis. This tool also served to identify projects that were independent from this EIS but important to evaluate for overall cumulative impact purposes. These criteria are intended to serve as a flexible tool for the decision maker, not a rigid requirement. The screening criteria are specificity, dependence, definition, and ripeness for decisionmaking. Each criterion is described below.

1.5.2.1 Specificity

The *JPARC Master Plan* objective must lead to a specific action that requires a decision in accordance with the NEPA process. Objectives describing a general capability or desired future state are not specific enough to lead to a definitive or programmatic decision. Projects that lack specificity are screened out and not addressed in this EIS.

1.5.2.2 Dependence

The *JPARC Master Plan* analysis generated a list of needed capabilities based on a set of joint requirements. The strategies and objectives are based on the *JPARC Master Plan Requirements Analysis*. Some of the objectives predate the master plan as independently planned or funded actions at JPARC specifically for the Army or Air Force. One of the values of the *JPARC Master Plan* is the coordination achieved by presenting all of the current plans and future requirements of the Army and Air Force in the same document, thus creating an opportunity to eliminate potential project timing, development, or programming conflicts. The independent projects are included in the *JPARC Master Plan* to coordinate them with all of the other actions. These independent actions are addressed in separate environmental analyses rather than in this EIS. Only projects that are dependent on the *JPARC Master Plan Requirements Analysis* will be considered in this EIS. The independent projects will be included in the cumulative impacts analysis presented in this EIS in Chapter [4.0, Cumulative Impacts and Secondary Effects](#).

1.5.2.3 Definition

Some of the *JPARC Master Plan* actions are lacking in sufficient definition regarding when, where, or how they would be executed. *JPARC Master Plan* actions that are unclear or that would require other extensive actions to occur before alternatives may be established have been screened out and will not be analyzed in this EIS. However, projects that lack definition will be included in the cumulative impacts analysis to the extent of their known potential to be a potential source of cumulative impacts.

1.5.2.4 Ripeness

Some of the *JPARC Master Plan* projects are ready immediately for definitive environmental analysis in the *JPARC Modernization and Enhancement EIS*, in accordance with the NEPA process.

Projects considered not yet ripe for decision will be addressed programmatically in this EIS. These projects will benefit from a programmatic evaluation and decision, as they are not yet ready for specific implementation in the JPARC ROD. These projects are waiting for completion on either additional planning, development, design, or funding. This EIS will address these projects programmatically and cumulatively so that the project proponent may continue to proceed with further planning, programming, design, or funding acquisition. Changes in military requirements, the environmental baseline (including lack of baseline data), funding, or design may impact the original programmatic decision on how or when the project would be implemented. In that event, further or additional NEPA analysis would be tiered from this EIS in a separate environmental impact document. This approach would inform each decisionmaker of the potential environmental consequences of the No Action Alternative, as well as each programmatic component of the proposed actions within this EIS. Each decisionmaker would take into account technical, economic, environmental, and social issues, as well as each proposed action's ability to meet the purpose and need and associated objectives when a decision is made to undertake a separate NEPA document tiered from the JPARC EIS.

1.5.3 Application of Screening Criteria

[Table 1-4](#) evaluates the *JPARC Master Plan* projects with the screening criteria.

Table 1-4. Comparison of JPARC Master Plan Projects with the Screening Criteria

JPARC Master Plan Project	Specificity	Dependence	Definition	Ripeness	Level of Analysis
Fox 3 Military Operations Area Expansion	Yes	Yes	Yes	Yes	Definitive
Paxon Military Operations Area Addition	Yes	Yes	Yes	Yes	Definitive
Realistic Live Ordnance Delivery	Yes	Yes	Yes	Yes	Definitive
Battle Area Complex Restricted Area Addition	Yes	Yes	Yes	Yes	Definitive
Expand Restricted Area R-2205	Yes	Yes	Yes	Yes	Definitive
Night Joint Training	Yes	Yes	Yes	Yes	Definitive
Unmanned Aerial Vehicle Access	Yes	Yes	Yes	Yes	Definitive
Enhance Ground Maneuver Space	Yes	Yes	No	No	Programmatic
Tanana Flats Training Area Roadway Access	Yes	Yes	Yes	No	Programmatic
Complex Urban Terrain	Yes	Yes	No	No	None
Joint Air–Ground Integration Complex	Yes	Yes	Yes	No	Programmatic
Intermediate Staging Bases	Yes	Yes	Yes	No	Programmatic
Missile Live-Fire for AIM-9 and AIM-120	Yes	Yes	Yes	No	Programmatic
Low-Altitude Tactical Navigation	Yes	No	Yes	Yes	Cumulative
Urban Target Set	Yes	No	Yes	Yes	Cumulative
Helicopter Gunnery	Yes	No	Yes	Yes	Cumulative
Additional Dry Targets	Yes	No	Yes	Yes	Cumulative
Joint Precision Airdrop System Drop Zones	Yes	Yes	Yes	No	Programmatic
High Angle Mountain Marksmanship Range	Yes	No	Yes	Yes	Cumulative
Digital Range Connectivity	Yes	Yes	No	No	None

1.5.3.1 Actions Well-Defined and Ripe for Decision

Based on the JPARC EIS Screening Criteria analysis, the following projects will be analyzed definitively for a decision in the JPARC Final EIS and ROD. The actions’ proponents are identified in parentheses:

- Fox 3 MOA Expansion (Air Force)
- Paxon MOA Addition (Air Force)
- RLOD (Air Force)
- BAX Restricted Area Addition (Army)
- R-2205 Expansion, including the DMPTR (Army)
- Night Joint Training (NJT) (Air Force)
- UAV Access (Army)

1.5.3.2 Programmatic Actions

The following projects require additional planning, programming, or development. Action proponents are identified in parentheses. During this extended process, new information about requirements, the

environmental baseline, and financial resources will continue to emerge. The overall planning process for these projects would benefit from the environmental evaluation of the potential impacts in this EIS and a programmatic decision on how the proponent should move the project forward. The programmatic documentation in this EIS will provide baseline information, project site selection and development criteria, and outline a process from which additional studies may be undertaken or tiered from the *JPARC Modernization and Enhancement EIS* to allow additional, site-specific NEPA analyses to be undertaken, based on the best available information.

- Enhancement of Ground Maneuver Space (Army)
- TFTA Roadway Access (Army)
- JAGIC (Army)
- ISBs (Army)
- Missile Live-Fire for AIM-9 and AIM-120 (Air Force)
- JPADS (Air Force)

[Figure 1-5](#), *JPARC Modernization and Enhancement EIS Proposed Actions*, provides a map depicting the general locations of each definitive and programmatic proposed action to be evaluated in this EIS.

1.5.3.3 JPARC Master Plan Objectives Independent of this EIS

The projects listed below are included in the *JPARC Master Plan*. These projects are independently required and will be analyzed for decisions in separate NEPA analyses. These projects will be evaluated on a cumulative basis and will be included in Chapter [4.0, Cumulative Impacts and Secondary Effects](#).

- LATN Training (Air Force)
- Urban Target Set (Army)
- Additional Dry Targets (Air Force)
- HAMMR (Army)
- Helicopter Gunnery (Army)

1.5.3.4 Actions Considered But Not Carried Forward

Digital Range Connectivity. Digital range connectivity is a general requirement rather than a specific action. It describes an objective that applies to all projects rather than a specific or programmatic decision for any single project or group of projects. Connections and infrastructure will be incremental, and will be included over time as needed to support ranges and new facilities.

Complex Urban Terrain. The Army is only beginning to understand how to train for this critical challenge to current operations. As doctrine, funding, and risk mitigation are developed, this training will become central to deploying forces into combat. Until then, decisions on where to conduct this training are premature.

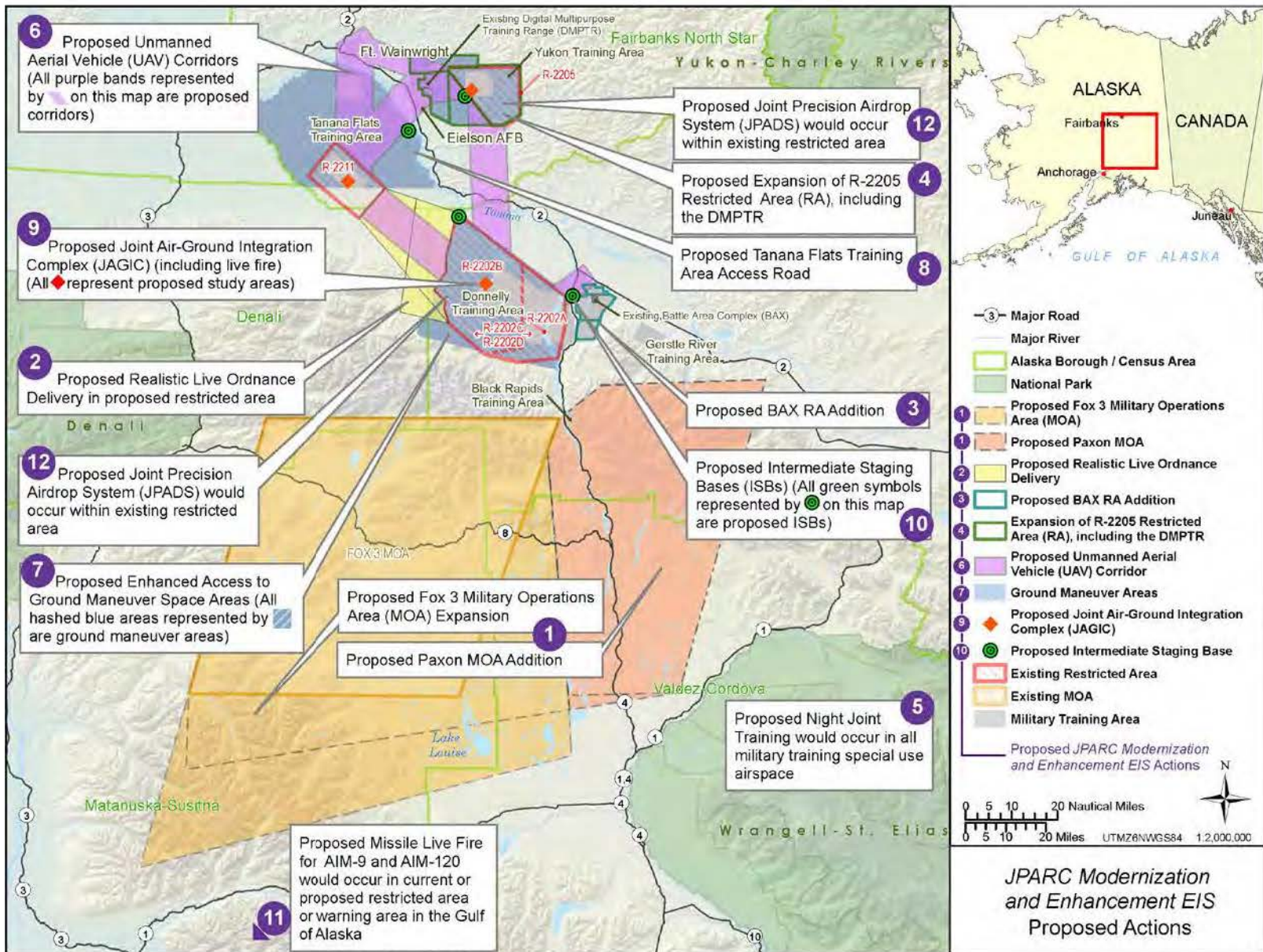


Figure 1-5. JPARC Modernization and Enhancement EIS Proposed Actions

1.5.3.5 Actions Considered Under Cumulative Impacts

See Chapter [4.0](#) for [Cumulative Impacts and Secondary Effects](#).

1.6 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

1.6.1 National Environmental Policy Act Process

The *JPARC Modernization and Enhancement EIS* has been prepared in accordance with NEPA (42 U.S.C. 4321 *et seq.*). NEPA is the basic national statute for identifying environmental consequences of major Federal actions, and it ensures that environmental information is available to the public, agencies, interested stakeholders, and the decisionmaker before decisions are made and before actions are taken.

The *JPARC Modernization and Enhancement EIS* will satisfy the NEPA requirements for the Air Force and Army as the joint lead agency proponents of the JPARC proposals and the FAA as a cooperating agency in accordance with its legal jurisdiction of the U.S. airways to be in line with FAA Order 7400.2 Section 2, 1-2-1 that states, “The navigable airspace is a limited national resource that Congress has charged the FAA to administer in the public interest as necessary to ensure the safety of aircraft and its efficient use.” Hence, the EIS shall be developed in accordance with CEQ regulations (40 CFR 1500–1508) and with 32 CFR 989 *et seq.* (Air Force) and 32 CFR 651 (Army) NEPA procedures. Additionally, the joint lead agencies will ensure the EIS complies with Service-specific and Cooperating Agency NEPA implementing regulations. Respective NEPA regulations are listed in [Table 1-5](#). Other relevant statutes, regulations, and guidelines applicable to implementing the proposal are presented in Appendix B, *Definition of the Resources and Regulatory Settings*, of the EIS. The FAA’s Federal actions also depend on a subsequent SUA Aeronautical Proposal.

Table 1-5. Applicable NEPA Regulations and Other Requirements

Governing Agency	Citation	Title
Council on Environmental Quality	40 <i>Code of Federal Regulations</i> (CFR) 1500–1508	“Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act”
U.S. Department of Defense	32 CFR 989 <i>et seq.</i>	“Environmental Impact Analysis Process” (EIAP) (Formerly known as Air Force Instruction 32-7061)
	32 CFR 651	“Environmental Analysis of Army Actions” (Army Regulation 200-2)
Federal Aviation Administration	Order JO 7400.2, Change 2	“Procedures for Handling Airspace Matters”
	Order 1050.1E, Change 1	“Environmental Impacts Policies and Procedures”

Key: CFR=Code of Federal Regulations; EIAP=Environmental Impact Analysis Process.

An EIS is prepared as a tool for compiling information about a Federal action and providing a full and fair discussion of environmental impacts on the natural and human environment. Reasonable and practicable alternatives to the proposed action as well as the No Action Alternative are also evaluated in an EIS. The No Action Alternative refers to the choice to make none of the modifications or additions to JPARC stipulated in the proposed actions identified in this EIS. The No Action Alternative, which describes the baseline military training operations and facilities at JPARC, includes recently approved actions as listed in [Table 1-1](#).

Compliance with NEPA guidance for preparation of an EIS involves several critical steps, as depicted in [Figure 1-6](#) and summarized below.



Figure 1-6. Sequence of Environmental Impact Statement Process

Announce that an EIS will be prepared. For the *JPARC Modernization and Enhancement EIS*, a Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on December 8, 2010.

Conduct scoping. Scoping is an open public comment process that involves members of the public, communities, organizations, and Federal and State agencies in EIS preparations through mailings, notifications, and scoping meetings. This is the first major step toward identifying the relevant issues to be analyzed in depth in the EIS and eliminating issues that are not relevant (see Section [1.6.7](#)). At a minimum, pursuant to Air Force Instruction (AFI) 32-7061 (Air Force 2003), scoping must last 30 days from the publication of the NOI.

Prepare a draft EIS. Based on the expertise of the lead agencies and issues raised by the public during scoping, the Army and the Air Force, as the joint lead agencies for the *JPARC Modernization and Enhancement EIS*, prepare a draft EIS. During preparation of the draft EIS, the consideration of all reasonable and practicable proposal alternatives is required by NEPA. All of the alternatives must meet the purpose and need of the project. If an alternative does not meet the purpose and need, or if it is clearly not reasonable, practicable or feasible, it is dropped from further consideration. Regulations require that an EIS consider the “no action” (also called no build) alternative as well as “action” or “build” alternatives. The resulting draft EIS provides a discussion of the reasonable alternatives, a description of the affected environment, an analysis of potential effects on resource areas under each alternative, and, if possible, a description of mitigation measures developed to avoid or minimize significant adverse impacts during the impact assessment process.

Conduct Draft EIS Public Comment Period. The draft EIS is also a comprehensive document for public and agency review. The public is then provided an opportunity to provide comments on the draft EIS. This opportunity includes a series of public hearings held during the comment period. The hearings give the public, agencies, and other interested stakeholders, such as the JPARC Ad Hoc Working Groups formed after the *JPARC Modernization and Enhancement EIS* scoping process, an opportunity to orally comment on the draft EIS after they have had the opportunity to review and evaluate the document in a formal manner. The hearings provide direct feedback to the EIS joint lead agencies from the public and external agencies. All substantive comments received during the public comment period are incorporated into the final EIS, along with responses provided by the Army and Air Force. Comments on the draft EIS must be provided by the specified due date to ensure they are reflected in the final EIS. Oral and written comments submitted at public hearings and those received through the mail or on the website are given equal consideration in the preparation of the final EIS.

Prepare a final EIS. The final EIS is prepared following the formal public comment period on the draft EIS. Comments submitted during the public comment period or presented at public hearings that address matters within the scope of the EIS are addressed by the Army and Air Force in the final EIS. All written

comments received are included in appendices to the final EIS. The final EIS is a revision of the draft EIS to reflect public and agency comments, the proponents' responses, and additional information received from reviewers, as applicable. The final EIS provides the decisionmakers with a comprehensive review of the potential environmental consequences of selecting the proposals evaluated, alternatives, or combinations of the proposals.

Issue a Record of Decision. The final step in the NEPA process is approval of the ROD, setting forth final decisions. The Army and the Air Force, with support from ALCOM, are the final decisionmakers. The EPA's *Federal Register* publication of final EIS receipt begins a 30-day waiting period before the ROD can be signed. The ROD identifies those actions selected by the decisionmakers and the management actions or mitigation measures that would be implemented to avoid, minimize, or mitigate adverse impacts on the environment, as practicable, or explains why such measures were rejected. The ROD specifies the entities responsible for implementing mitigations and the source of funds for those mitigations.

1.6.2 Analysis of Combined and Cumulative Effects

Both the Air Force and Army have guidance for preparing NEPA documents and analyzing the impacts of Federal actions. This guidance complies with CEQ regulations and direction to ensure a level of consistency in evaluating impacts and comparing impacts across the two Services that will help with decisionmaking. It also includes a process for focusing analysis on areas where impacts are most likely to occur, considering the type of actions involved in a geographic context.

For this EIS, cumulative impacts are also evaluated to account for impacts of all aspects of the proposed actions and alternatives, impacts in a broader (local and regional) context, and impacts of the proposed actions and alternatives in combination with other major past, present, and future actions in the JPARC region. This EIS will also consider how these proposals overlap, geographically or operationally, so that analysis can account for their combined or specific implementation. An analysis of combined effects is provided for each resource area in Chapter [3.0](#), Environmental Consequences, where applicable.

1.6.3 Tiering from a Programmatic EIS

This broad-scope EIS addresses proposed projects and activities with varying degrees of specificity. The proposed surface actions include several new facilities, new capabilities, or changes in surface activities/uses, without specific details on location or their implementation. Alternatively, airspace actions are evaluated with definitive levels of detail in their location, use, and structure. Both types of actions are analyzed broadly to cover the type of impacts that may result from such activities and to identify the types of mitigation measures that could reduce or mitigate impacts.

It is noted also that the JPARC EIS No Action and the Action Alternatives incorporate by reference the environmental analyses listed in the NEPA documents in Chapter [1.0](#), [Table 1-1](#), Recent DoD Actions in the JPARC Region.

The CEQ advises agencies to tier environmental documents to eliminate repetition and to focus the decisionmaking process on the salient issues at each level of review. Some decisions from this EIS are "programmatic," requiring consideration of specific actions as they are further defined. These future evaluations can tier from and use information from this EIS. Tiering is defined as the process by which general topics are evaluated in broader-scope documents (i.e., "programmatic" documents), and the scope is subjected to narrowing in subsequent documents (project, activity, or site-specific documents). Narrower-scope documents still address broader scope topics, based on the programmatic document

baseline and analysis, but restrict the focus to specific issues. Other decisions as to implementation of an action may require no further evaluation.

As the programmatic actions are more fully defined (closer to implementation), they may require additional environmental evaluation. The appropriate level of NEPA documentation—record of environmental consideration or categorical exclusion, environmental assessment (EA), or EIS—will depend on the degree to which these actions incorporate measures to limit possible impacts (as identified through this EIS), avoid sensitive locations, or correspond to previously analyzed or excluded actions. The programmatic EIS can help streamline subsequent NEPA requirements for specific projects that are covered in a programmatic decision. For example, the programmatic EIS analysis can identify measures that would reduce expected impacts of the various proposals. Planning for these future projects can incorporate a siting process or specific conservative practices designed to avoid or limit impacts, and thereby limit any follow-on NEPA analysis to an EA or record of environmental consideration, rather than an EIS.

1.6.4 Lead, Cooperating, and Participating Agencies

This section describes agencies and organizations invited to be cooperating or participating agencies. Agencies or organizations can accept the responsibilities of cooperating agencies or can choose to be participating agencies. [Table 1-6](#) lists relevant correspondence regarding cooperating agency status during this EIS process. Copies of agency correspondence, including agency correspondence regarding concerns about the proposed JPARC enhancements and modernizations are contained in Appendix A, *Public Scoping Summary*.

1.6.4.1 Lead Agencies.

The Air Force and Army are joint lead agencies for this Federal action. They will both make decisions based on this EIS and will supervise the EIS process. As joint lead agencies, instructions and regulations of both agencies will apply and, where they differ, the more-restrictive or -inclusive position will be used to guide the EIS process and analysis.

1.6.4.2 Cooperating Agencies.

Cooperating agencies have specific responsibilities in the preparation of the EIS. A cooperating agency is any Federal agency, other than a lead agency, that has jurisdiction by law over, or special expertise with respect to any environmental impact involved in, a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment (40 CFR 1508.5). The regulations also state the following: “A State or local agency of similar qualifications...may by agreement with the lead agency become a cooperating agency.”

Cooperating agencies have specific responsibilities in the preparation of the EIS. Cooperating agencies assume responsibility for the development of information and the preparation of environmental analyses at the request of the lead agency (40 CFR 1501.6(b)(3)). Cooperating agencies are required to devote staff resources early in the NEPA process, primarily in the scoping and draft EIS preparation stages, as well as in the EIS review stages (40 CFR 1501.6).

1.6.4.3 Participating Agencies.

Federal, State, Tribal, regional, and local government agencies that may have an interest in the project can be invited to serve as participating agencies. Participating agencies are responsible to identify, as early as practicable, any issues of concern regarding the project’s potential environmental or socioeconomic impacts. This early and meaningful coordination and input can help determine the range of alternatives to

be analyzed in the EIS. A participating agency's role includes timely review of, and comment on, environmental documents.

1.6.4.3.1 Federal Agencies with Jurisdiction by Law.

Federal agencies with jurisdiction by law include the FAA, the U.S. Department of the Interior (DOI) Bureau of Land Management (BLM), the U.S. Fish and Wildlife Service (USFWS) and the U.S. Environmental Protection Agency (EPA). The FAA officially became a cooperating agency on March 10, 2011. The BLM declined to become a cooperating agency on February 10, 2011, explaining that it had no permitting, authorizing, or financing role for any of the actions proposed under the alternatives presented during the scoping process for the JPARC Modernization and Enhancement EIS. The BLM explained further that if the actions in the alternatives were modified such that the Bureau would have a permitting, authorizing, or financing role, it would reconsider becoming a cooperating agency. The BLM, USFWS and EPA chose to be involved in the JPARC Modernization and Enhancement EIS as participating agencies, in accordance with their respective consultation and coordination mandates regarding the NEPA process.

Federal Aviation Administration. Congress has charged the FAA with administering all navigable airspace in the public interest as necessary to ensure the safety of aircraft and the efficient use of such airspace. The FAA is the agency with jurisdiction by law and special expertise with respect to those portions of the JPARC proposal regarding changes in the configuration of the airspace and establishment of new airspace. No charted airspace decision has been made or will be made prior to a complete environmental review.

The aeronautical proposal will be submitted by the Air Force to the FAA for the JPARC proposals that affect public airspace. The FAA will review the proposal in accordance with FAA policies and procedures. According to FAA environmental policies and procedures, including Order 1050.1 (with changes) and in accordance with 40 CFR 1506.3, the FAA can adopt the final EIS in whole or in part as an official environmental analysis supporting the airspace proposal. Upon acceptance, the FAA would issue its own determination and provide notification to EPA of the adoption. Charting of any airspace modification would be performed by the FAA. The Army and Air Force goal in its cooperative effort with the FAA is for this EIS to fulfill the NEPA requirements of each agency.

U.S. Department of the Interior (DOI) Bureau of Land Management (BLM). The DOI/BLM has responsibility for managing public lands in the national and public interest in a manner that is sustainable for future generations. The BLM is the agency with jurisdiction by law and special expertise with respect to lands within the JPARC region of influence (ROI), regarding changes in use of those lands or use of airspace above those lands that may affect public use and productivity. Decisions affecting surface use of BLM lands may require changes to current management plans and/or implementation of Memoranda of Understanding, leases, access, or acquisition. In accordance with 40 CFR 1506.3, the DOI/BLM can adopt the final EIS in whole or in part as an official environmental analysis supporting the JPARC proposal.

United States Fish and Wildlife Service. The USFWS is a Federal agency within DOI dedicated to the management of fish, wildlife, and habitats. This includes management of the National Wildlife Refuge system, large acreages of which are located in Alaska. The mission of the USFWS is to work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats. The USFWS also manages and administers Section 7 consultation for NEPA actions and the Federal Endangered Species Act (ESA), the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act. Section 7 consultation correspondence is summarized in [Table 1-6](#).

U.S. Environmental Protection Agency. Like other Federal agencies, EPA prepares and reviews NEPA documents. However, EPA has a unique responsibility in the NEPA review process. Under Section 309 of the Clean Air Act, EPA is required to review and publicly comment on the environmental impacts of

major Federal actions, including actions that are the subject of EISs. If EPA determines that the action is environmentally unsatisfactory, it is required by Section 309 to refer the matter to CEQ.

Also, in accordance with a Memorandum of Agreement between EPA and CEQ, EPA carries out duties associated with administrative aspects of the EIS filing process. The Office of Federal Activities in EPA has been designated the official recipient in EPA of all EISs prepared by Federal agencies.

1.6.4.3.2 Federal Agencies with Special Expertise

Federal agencies that have special expertise with respect to environmental resources involved in the proposed JPARC enhancements include the Alaska National Guard, Navy, National Marine Fisheries Service, Bureau of Indian Affairs (BIA), National Park Service, Advisory Council on Historic Preservation, U.S. Army Corps of Engineers (USACE), and the U.S. Forest Service (USFS).

Alaska National Guard. The Alaska National Guard provides strategically positioned, relevant, and ready military forces capable of rapid deployment and joint operations while maintaining the capability to provide emergency services to the State of Alaska. The Air National Guard and the Army National Guard will share the training assets with other military branches in joint training activities in JPARC.

U.S. Navy. The Navy, one of the military partners in the JPARC planning process, completed an EIS for combined military operations in the GOA. The Navy is a key partner in sharing training assets with the Air Force and Army and participates in joint training activities using the JPARC assets.

National Marine Fisheries Service (NMFS). The NMFS (National Oceanic and Atmospheric Administration [NOAA] Fisheries) is responsible for the management, conservation and protection of living marine resources, including marine mammals and anadromous fish species. It is responsible for most marine species and anadromous fish species listed under the ESA and handles Section 7 consultations for these species under the ESA, within the United States Exclusive Economic Zone (EEZ). NMFS also supports and advises in the management of marine resources in coastal areas under State jurisdiction, provides scientific and policy leadership in the international arena, and implements international conservation and management measures as appropriate.

Bureau of Indian Affairs (BIA) (Alaska Region). The Alaska region of the BIA encompasses a dynamic and diverse mix of tribes, Tribal organizations, and natural features, stretching from Ketchikan in the southeast panhandle to Barrow on the Arctic Ocean, and from Eagle on the Yukon Territory border to Atka in the Aleutian Chain. Eastern portions of these areas are within the boundaries of proposed JPARC actions. The BIA provides a central agency for considering issues affecting Alaska Natives and subsistence resources.

National Park Service. The National Park Service manages several national parks and monuments in Alaska. The National Park Service is the Federal agency with jurisdiction by law and special expertise with respect to national parks and monuments within the JPARC ROI, and thus with respect to changes in use of those lands or airspace above those lands that may affect the qualities intrinsic to their valued resources.

Advisory Council on Historic Preservation. The Advisory Council on Historic Preservation is an independent Federal agency established by the National Historic Preservation Act (NHPA) of 1966 that promotes the preservation, enhancement, and productive use of our nation's historic resources, and advises the President and Congress on national historic preservation policy. The Council issues regulations to implement Section 106 of NHPA, provides guidance and advice on the application of the procedures, and generally oversees the operation of the Section 106 process. The Council also consults with and comments to agency officials on individual undertakings and programs that affect historic properties.

U.S. Army Corps of Engineers (USACE). The USACE has special expertise and permitting responsibilities regarding U.S. navigable waterways and wetlands potentially impacted by proposed JPARC modernization and enhancement proposals. The USACE is the Federal agency authorized to issue Section 404 permits for certain activities conducted in wetlands or other U.S. navigable waters. Section 404 of the CWA regulates the discharge of dredged, excavated, or fill material in wetlands, streams, rivers, and other U.S. waters. Selective projects identified in this EIS have the potential to impact wetlands or other waters under the jurisdiction of the USACE.

U.S. Forest Service (USFS). The USFS, under the U.S. Department of Agriculture, manages public lands in the extensive national forests and grasslands across the U.S. National Forests are primarily located in the southern portion of Alaska.

1.6.4.3.3 State Agencies with Special Expertise

State agencies that have special expertise with respect to environmental resources involved in the proposed JPARC modernization and enhancement proposals include the Alaska Departments of Natural Resources, Fish and Game, and Military and Veterans Affairs, and the State Historic Preservation Officer (SHPO).

Alaska Department of Natural Resources (ADNR). The goal of the ADNR is to contribute to Alaska's economic health and quality of life by protecting and maintaining the State's resources and encouraging wise development of these resources by making them available for public use. It does so by managing all State-owned land, water, and natural resources, except for fish and game, on behalf of the people of Alaska, including areas under and within the JPARC ROI.

Alaska Department of Fish and Game (ADFG) and Division of Subsistence. The mission of the ADFG is to scientifically quantify, evaluate, and report information about customary and traditional uses of Alaska's fish and wildlife resources. In 1978, the Alaska Legislature passed the Alaska Subsistence Law, requiring that subsistence uses of fish and game be authorized and protected. This established the legal basis for the Division of Subsistence within the department and, with it, the duty of understanding human systems—that is, people and their ways of living—using systematic methods of gathering and analyzing information developed for the social sciences, including interviews, mapping, surveys, direct observation, and participant observation. The Division of Subsistence is responsible for determining priorities for subsistence harvesting (and licenses) based on information regarding subsistence resources across Alaska. The ADFG also participates in Section 7 consultation for NEPA actions and the Federal ESA. Section 7 consultation correspondence is summarized in [Table 1-6](#).

Alaska Department of Military and Veterans Affairs, Office of the Adjutant General. The mission of the Alaska Department of Military and Veterans Affairs is to provide strategically positioned, relevant, and ready military forces capable of rapid deployment, joint operations, and mission accomplishment while maintaining the capability to provide emergency services to the State of Alaska.

Alaska Office of History and Archaeology (AOHA). The AOHA carries out the responsibilities of the SHPO, as appointed by the Governor. Responsibilities of the AOHA include, but are not limited to, historic preservation planning; survey and inventory of historic properties; nomination of properties to the National Register of Historic Places (National Register); and participation in the review of Federal, State, and local undertakings that may affect historic properties, including NHPA Section 106 consultation. Section 106 consultation correspondence is summarized in [Table 1-6](#).

1.6.4.3.4 Local Governmental and Nongovernmental Organizations with Special Expertise

Participation of local governmental and nongovernmental organizations in the preparation of NEPA analyses and documentation helps in disclosing relevant information early in the analytical process; applying available technical expertise and staff support; avoiding duplication with other Federal, State, Tribal, and local procedures; and establishing a mechanism for addressing intergovernmental issues (CEQ Memorandum, January 30, 2002). Local governments or organizations with special expertise include Alaska Native Regional Corporations and local boroughs.

Alaska Native Regional Corporations and Alaska Native Village Corporations. The Alaska Native Regional Corporations and Alaska Native Village Corporations (also known as Alaska Native Claims Settlement Act [ANCSA] Corporations) were established when the Congress passed the ANCSA, which settled land and financial claims made by the Alaska Natives and provided for the establishment of 13 regional corporations to administer those claims. Three regional corporations (and several associated village corporations) overlap with the JPARC planning area: Doyon Limited; Cook Inlet Region, Inc.; and Ahtna, Inc.

Fairbanks North Star Borough (FNSB), Southeast Fairbanks Census Area, Yukon-Koyukuk Census Area, Matanuska-Susitna Borough, Denali Borough, Anchorage Municipality, and Valdez-Cordova Census Area. Boroughs issue leases, licenses, and other agreements for the use of land and resources located within their jurisdiction. Boroughs can have a planning function with respect to how land is used to safeguard their residents; the FNSB, in particular, is an important partner in planning for future compatibility of land development in areas adjacent to the JPARC training areas.

1.6.5 Government-to-Government Consultation

This section presents a summary of the government-to-government consultation efforts associated with the environmental impact analysis process (EIAP) pursuant to DoD Instruction 4710.02, *Interaction with Federally Recognized Tribes* (DoD 2006), and the 2007 DoD American Indian/Alaska Native Policy: Alaska Implementation Guidance (Guidance) (ALCOM 2007). The Guidance is designed to enhance government-to-government working relationships between DoD and the tribes in Alaska. Tribes affected by the Guidance are Native entities within Alaska recognized and eligible to receive services from the DOI/BIA and included in the most recent *Federal Register* listing. The Guidance requires notification and consultation with tribes when a proposed DoD action “that may have the potential to affect protected Tribal rights, Indian land, or resources.”

Pursuant to the Guidance, Tribal rights include legal rights accruing by virtue of inherent sovereign authority, unextinguished aboriginal titles, statutes, judicial decisions, EOs, or agreements that give rise to legally enforceable remedies. Tribal resources are those natural resources or properties of traditional or customary religious or cultural importance, whether on or off Indian land, retained by or reserved for Indian tribes through treaties, statutes, judicial decisions, or EO s, including Tribal trust resources. Indian land, as defined by DoD policy, is land held in trust by the United States for the benefit of a tribe or Native individual, or held by such tribe or individual subject to restriction by the United States against alienation.

The DoD policy consultation triggers were tripped based on the proposed action and provided a more robust opportunity for tribes to influence the outcome of the NEPA process than CEQ regulations. For instance, CEQ regulations only require seeking input from tribes when actions are proposed on reservation land but none of the potentially affected Alaskan tribes have reservations. Further, DoD policy encourages contact with tribes ahead of the public process in recognition of their sovereignty and affords Tribal leaders the opportunity to meet one-on-one with the highest ranking military officials in Alaska. All 229 Federally recognized Alaskan tribes were informally appraised of the intent to pursue JPARC in ALCOM’s Tribal Military Affairs newsletter in the summer of 2010.

Table 1-6. Correspondence Regarding Cooperating Agency Status and Formal Consultation

Agency	Date	Subject
Federal Aviation Administration	December 2, 2010	Early Coordination Meeting
	December 10, 2010	ALCOM letter announcing Draft EIS and requesting participation
	February 16, 2011	Air Force letter requesting participation as a cooperating agency
	March 4, 2011	FAA response letter regarding initial review of JPARC proposals
	March 10, 2011	FAA response letter regarding cooperating agency status
	March 11, 2011	FAA comments for the proposed JPARC EIS
U.S. Department of the Interior, Bureau of Land Management	November 30, 2010	Early Coordination Meeting
	December 10, 2010	ALCOM letter announcing Draft EIS and requesting participation
	February 10, 2011	BLM response letter regarding initial review of JPARC proposals and cooperating agency status
	February 10, 2011	Air Force letter requesting participation as a cooperating agency
	March 3, 2011	BLM scoping comments on JPARC EIS proposals
U.S. Fish and Wildlife Service	December 6, 2010	Early Coordination Meeting
	December 10, 2010	ALCOM letter requesting Endangered Species Act consultation
	March 4, 2011	USFWS response letter regarding initial review of JPARC EIS proposals
Alaska Department of Fish and Game	December 10, 2010	ALCOM letter requesting Endangered Species Act consultation
	March 1, 2011	Alaska Department of Fish and Game letter regarding initial review of JPARC EIS proposals
Alaska State Historic Preservation Officer	December 10, 2010	ALCOM letter requesting participation in NHPA Section 106 consultation
	January 23, 2012	SHPO response letter regarding Section 106 consultation
	February 7, 2012	Section 106 consultation letter from the Army to the Alaska SHPO
Alaska Native Tribes	September 20, 2010	ALCOM Government-to-Government Tribal Coordination and Consultation letter
	February 7, 2012	Section 106 consultation letter from the Army to the Alaska SHPO and Federally recognized Alaska Native tribes.
Sun'aq Tribe of Kodiak, Village of Dot Lake, Chickaloon Native Village	February 28, 2011	Tribal Government-to-Government response letter Government-to-Government Consultation Meeting with ALCOM
	April 8, 2011	ALCOM follow-up letter with Government-to-Government Consultation Meeting Minutes

Key: ALCOM=Alaskan Command; BLM=Bureau of Land Management; FAA=Federal Aviation Administration; NHPA=National Historic Preservation Act; SHPO=State Historic Preservation Officer; USFWS=U.S. Fish and Wildlife Service.

A summary of government-to-government consultation correspondence is listed in [Table 1-6](#). In accordance with the consultation procedures laid out in DoD Instruction 4710.02 (DoD 2006) and the Guidance, ALCOM mailed (return receipt requested) or hand-delivered official government-to-government consultation letters to 35 Federally recognized Alaska Native tribes on September 20, 2010 (see Appendix A, *Public Scoping Summary*). These early letters (ahead of the public process) requested the tribes to consider whether the JPARC proposal may have the potential to significantly affect any of their Tribal rights, Indian land, or protected Tribal resources. The letters listed Native Affairs Advisor, Dr. Jerome Montague, as the primary point of contact and requested a reply within 60 days or by November 8, 2010. During this period Dr. Montague personally visited the tribes closest to the interest area to ensure tribes understood the proposals and were aware of their rights and responsibilities. Further, all tribes were telephoned or e-mailed to verify whether each tribe received the offer to consult and whether they decided to consult. In response to these letters, visits, telephone calls, and e-mails, three of the tribes, through the following officials, requested formal government-to-government consultation:

1. Mr. William Miller, President, Village of Dot Lake
2. Mr. Eric Olsen, Council Member, Sun’aq Tribe of Kodiak
3. Mr. Doug Wade, Chairman, Chickaloon Native Village

Lieutenant General Dana Atkins, Commander, ALCOM and Major General Raymond Palumbo, Commander, USARAK, met with the three tribes desiring consultation on February 28, 2011, to further explain the proposals to be evaluated in the *JPARC Modernization and Enhancement EIS*. The meeting allowed an opportunity for the Tribal leaders to fully explain and discuss their concerns with the Commanding Generals and to agree on proposals and plans of action to alleviate them. These concerns and the government-proposed responses are outlined in detail in Appendix A, *Public Scoping Summary*, in meeting minutes from the February 28, 2011, consultation meeting.

1.6.6 Public Involvement

This section presents a summary of the public participation efforts associated with the *JPARC Modernization and Enhancement EIS*. NEPA requires that Federal agencies involve the public in the decisionmaking process for major Federal actions that may significantly affect the environment. The JPARC EIS process has provided and continues to provide several opportunities for public involvement, including the following:

- The public scoping period was conducted from December 8, 2010, to March 4, 2011
- The JPARC website, which provides information to the public, including handouts and fact sheets regarding the project, became available during December 2010.
- Public scoping meetings were conducted during January 2011.
- The *Draft JPARC Modernization and Enhancement EIS* was made available for distribution and public, agency, and interested stakeholder review between March 30 and July 9, 2012.
- Notices of the draft EIS and public hearings were distributed in March and April of 2012. Formal public hearings were held May 11 through 23, in the middle of the public draft EIS review period. Through these notifications and public hearings, ALCOM requested the public, agencies, and interested stakeholders to provide oral or written comments on the draft EIS.

- The draft EIS review period was originally scheduled to close on June 7, 2012. After receiving comments requesting an extension of the comment period, ALCOM extended the comment period to July 9, 2012, 6 weeks beyond the original timeline.
- Refer also to Section [1.6.1](#) above for a review of the NEPA process planned for the *JPARC Modernization and Enhancement EIS*.

1.6.7 Scoping Process

NEPA requires a minimum 30-day scoping period. For this project, the scoping period lasted almost 90 days, from December 8, 2010 to March 4, 2011, due to the geographical extent of the project, the number of scoping meetings, interest shown, and the importance of gathering all public and organizational input. The scoping period for the JPARC Modernization and Enhancement EIS began when an NOI was published in the *Federal Register* on December 8, 2010. ALCOM announced the intent to prepare an EIS and to hold scoping meetings through newspaper display advertisements and press releases placed in *The Anchorage Daily News*, *Alaska Star*, *Copper River Record*, *Fairbanks Daily News-Miner*, *Delta Wind*, and *The Frontiersman*, as well as through flyers, mailed letters, and public service announcements aired on regional radio and television stations. The closing date for the scoping period was February 4, 2011. In response to public comment, the comment period was extended to March 4, 2011. [Table 1-7](#) outlines the scoping meetings and the number of comments presented.

The intent of the Air Force and Army during the scoping process was to provide the greatest level of opportunity for government agencies, special interest groups, and the general public to learn about the JPARC proposals and to offer several ways for those interested to express their thoughts regarding the proposals. Air Force and Army representatives explained why the JPARC proposals are necessary, described the proposed alternatives, summarized the NEPA process, and provided a tentative schedule of milestones. Through handouts and notification materials, ALCOM clarified that the public could submit comments at the scoping meetings or any time during the scoping period via mail to ALCOM Public Affairs, 9480 Pease Avenue, Suite 120, JBER, Alaska 99506; phone at 907-552-2341; or the EIS website at www.jpisceis.com. ALCOM clarified to the public that public comments received by the close of the comment period would be considered during draft EIS preparations. A more detailed summary of the scoping process, the public involvement program, and agency coordination is contained in Appendix A, *Public Scoping Summary*.

Comments and discussions during scoping meetings and submitted in writing served to identify and highlight various issues related to the JPARC proposals. Comments are summarized in [Table 1-8](#), Summary Key Issues by Resource, displaying the primary issues and concerns for each resource topic evaluated. The issue summaries were derived from inputs received during public scoping for the EIS and from the experience of resource specialists. The table also shows how the proposed actions and alternatives changed as a result of the scoping process and agency coordination and where the scoping issues are addressed in the EIS. A quantitative breakdown of the comments by EIS topic and JPARC proposed actions is presented in [Table 1-9](#). The issues raised during scoping are discussed in the baseline conditions and resource analysis for each JPARC proposal in Chapter [3.0](#), Environmental Consequences.

The actions and topics of greatest concern, as indicated by the number of comments, include the Fox 3 and Paxon MOA expansions; the lowering of the SUA to 500 feet AGL; and related impacts on civil aviation, residents, recreation, hunting, wildlife (particularly caribou/moose migration and calving areas and trumpeter swan/migratory bird breeding grounds), subsistence activities, the tourism industry, and commercial aviation access. Specific areas of concern include Fairbanks International Airport access and the areas of Lake Louise, Copper Basin, the Talkeetna Mountains, and the Denali Highway corridor.

Safety concerns mainly focus on airspace conflicts below 5,000 feet AGL, particularly the mix of high-speed aircraft and small, low-speed general aviation aircraft.

Table 1-7. Scoping Meeting Summary

Scoping Meeting Date and Time	Scoping Meeting Location	Number of Meeting Attendees	Number of Written Comments Submitted
January 13, 2011 6:30 to 8:30 p.m.	The Millennium Alaskan Hotel Turnagain Room 4800 Spenard Road Anchorage, AK 99517-3236	34	1
January 18, 2011 6:30 to 8:30 p.m.	Caribou Hotel Mile 186.5 Glenn Highway Glennallen, AK 99588	33	3
January 19, 2011 6:30 to 8:30 p.m.	Alaska Steakhouse and Motel 1271 Richardson Highway, Mile 265 Delta Junction, AK 99731	29	1
January 20, 2011 noon to 2:00 p.m. and 4:00 to 8:00 p.m.	Princess Fairbanks Hotel 4477 Pike’s Landing Fairbanks, AK 99709	114	3
January 24, 2011 6:30 to 8:30 p.m.	Motel Nord Haven 249 George Parks Highway Healy, AK 99743	29	0
January 25, 2011 6:30 to 8:30 p.m.	Swiss Alaska Inn 22056 South F Street Talkeetna, AK 99676	28	0
January 26, 2011 6:30 to 8:30 p.m.	Menard Memorial Sports Center 1001 South Mack Drive Wasilla, AK 99654	85	6
Totals		352	14

Key: AK=Alaska.

Among other concerns are the potential dangers posed by hazardous waste, in particular unexploded ordnance and its potential for closing off access to public lands; proposed airspace restrictions over the BAX and Isabel Pass; and the potential for negative impact of the proposals on the populations closest to the highly used, road-accessible Alaskan beltway. Tourism is prominent among socioeconomic concerns; several commenters requested that training exercises avoid the summer and fall season due to the tourism traffic during those times of year. Of additional concern are potential impacts on personal freedoms; fundamental Alaskan values, notably including solitude and peace and quiet; and the use of nature for recreation as well as subsistence.

The Army and the Air Force, with support from ALCOM, revised several of the proposed actions and alternatives based upon public, agency, interested organization, and Tribal comments.

[Table 1-8](#) summarizes the primary issues and concerns for each resource topic evaluated. They are derived from inputs received during public scoping for the EIS and from the experience of resource specialists. Each proposal is presented in a separate section ([3.1](#) – Expand Fox 3 MOA and New Paxon MOA, [3.2](#) – Realistic Live Ordnance Delivery, and so forth).

Table 1-8. Summary of Key Issues by Resource

	Issue	Applies to EIS Proposal
Airspace Management and Use		
1.	Because aviation is the essential means of access to rural Alaska given the expansive geography and very limited surface transportation, the consequences from loss of access for civilian aviation (and dependent activities, businesses, and communities) can be great. The following aspects of the proposal and effects on access need to be fully evaluated: the altitude structure, particularly lowering the MOA floors to 500 feet AGL (so that civilian and military traffic would share airspace in a visual flight rule environment), lateral expansion of the MOAs and distance to circumnavigate.	Fox 3/Paxon MOA BAX RA Expand R-2205 RA NJT UAV Access
2.	The effect of converting MOA to restricted airspace which precludes civilian use needs to be fully evaluated in terms of hours lost to circumnavigate, or lost access to airstrips serving areas under proposed restricted airspace.	RLOD BAX RA Expand R-2205 RA UAV Access
3.	Potential disruption to established routes (Victor routes, RNAV) and impact on commercial air carriers, particularly in the congested airspace around Fairbanks.	Fox 3/Paxon MOA BAX RA Expand R-2205 RA UAV Access
4.	Analysis should identify small landing strips and private airfields affected by the actions, and particularly those providing IFR services for all-weather access.	Fox 3/Paxon MOA BAX RA Expand R-2205 RA UAV Access
5.	Concern that the structure of military airspace would force civilian traffic to operate in MOAs (using “see and avoid”), increasing potential safety risks (mostly in air collision) due to congestion, mix of aircraft types with varying performance levels, and mix of pilot skill levels.	Fox 3/Paxon MOA UAV Access
6.	Existing SUAIS communications system has proved effective at maximizing access using “real-time” notifications and advisories. However, the current system may be inadequate to provide deconfliction and information to pilots for a wider area.	Fox 3/Paxon MOA NJT UAV Access Missile Live-Fire
7.	Many private pilots do not have compatible or adequate communication equipment to receive notifications. This limits the effectiveness of the system and could result in unsafe situations. The analysis should consider what improvements are needed to provide safe airspace management for all users.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2205 RA NJT UAV Access Missile Live-Fire
8.	With cumulative complexity and congestion of airspace in the Fairbanks area (civilian and military), following airspace rules is a public safety concern. The analysis should consider methods to monitor compliance as part of the overall airspace management system.	Fox 3/Paxon MOA BAX RA Expand R-2205 RA NJT UAV Access
9.	UAVs are unable to operate in “see and avoid” environment. Routes/corridors or rules for sharing or dedicating airspace for these vehicles adds complexity to managing airspace for civilian use that is essential for day-to-day functioning in Alaska.	UAV Access
Noise		
10.	Increase in noise levels from proposed military operations, particularly from aircraft operations at low altitudes and at night, potentially causing annoyance and disturbance to persons, domestic animals, wildlife, and other receptors.	Fox 3/Paxon MOA NJT UAV Access
11.	Potential for proposed military operations to cause incompatible noise levels with activities in impacted area, particularly in populated areas.	Fox 3/Paxon MOA NJT UAV Access

Table 1-8. Summary of Key Issues by Resource (Continued)

Issue	Applies to EIS Proposal
Noise (continued)	
12. Expansion of areas affected by noise, potentially causing annoyance or change to the quality of characteristically quiet areas, particularly in noise sensitive areas, national parks, wilderness area and Federal and State conservation areas.	Fox 3/Paxon MOA NJT UAV Access Missile Live-Fire
13. Expansion of areas affected by sonic booms potentially causing damage to homes, persons, domestic animals, wildlife or other receptors	Fox 3/Paxon MOA NJT
14. Potential increase in impulsive noise from increased munitions use and new types of munitions on recreation and various uses on non-military lands.	RLOD BAX RA Expand R-2205 RA JAGIC
Safety	
Safety-Cumulative	
15. Potential increase in safety risks from the cumulative increase in land and airspace military use, intensified use of existing areas, live ordnances, extended nighttime training hours, and lowered flight levels.	All proposed actions
Safety-Aircraft/Airspace	
16. Proposed lowering of the MOA floor and creation of UAV corridors, particularly during bad weather and in areas with limited communication capabilities, where difficulty may exist in identifying UAV corridors with VFR instruments, in narrow corridors, and in areas of high use, increasing potential for low-level aircraft conflicts and crashes.	Fox 3/Paxon MOA UAV Access
17. Increase in nighttime training potentially causing increased aircraft conflicts and crashes.	NJT
18. Increase in low-flying aircraft and UAVs potentially increasing ground hazards from aircraft crashes, particularly in high-use recreations area.	Fox 3/Paxon MOA UAV Access
19. Increase in low-flying aircraft potentially causing health hazards from noise or pollution.	Fox 3/Paxon MOA BAX RA Expand R-2202 RA UAV Access JAGIC
20. Potential increase in bird/wildlife-aircraft strike hazard (BASH) from increased low-level flights.	Fox 3/Paxon MOA NJT UAV Access Missile Live-Fire
21. Potential for expanded special use airspace to restrict ability for flight training, essential Medevac access, air access to emergencies or wildfires, the delivery of essential goods in the winter to towns, or state fire suppression efforts.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2202 RA UAV Access JAGIC JPADS Missile Live-Fire
22. Increased potential of wake turbulence or sonic boom impacts on small aircraft from increased military aircraft operations.	Fox 3/Paxon MOA NJT
Safety-Live Fire	
23. Increase in live-fire training causing potential safety hazards and the creation of harmful situations and substances for citizens from increased wildfires, potential bombing, unexploded ordnance, and other toxins.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2205 RA JAGIC Missile Live-Fire

Table 1-8. Summary of Key Issues by Resource (Continued)

	Issue	Applies to EIS Proposal
Safety (continued)		
Safety-Sonic Booms		
24.	Increased frequency of sonic booms or expansion of areas used for supersonic operations could increase safety risks to citizens, particularly, concerns about mining and mines, small aircraft, high-altitude climbers or avalanches being triggered by sonic booms or noise vibrations.	Fox 3/Paxon MOA NJT
25.	Potential for increased risk to people and other receptors from an increased radiofrequency environment from proposed military operations.	All proposed actions
Air Quality		
26.	Increase in air pollution from increased military aircraft operations.	All proposed actions
27.	Increase in air pollution from increased military vehicle and ground operations.	BAX RA Expand R-2202 RA JAGIC ISBs Ground Maneuver TFTA Access JPADS
28.	Proposed military airspace operations potentially causing air pollution and impacting views of Mount McKinley and clear skies in nationally designated special areas.	Fox 3/Paxon MOA
29.	Increase in particulate matter (primarily concerned with PM _{2.5}) from any of the proposed actions in the portions of the Fairbanks North Star Borough (FNSB) that are non-compliant with Federal PM _{2.5} regulations.	All proposed actions
Physical Resources		
30.	Potential for lowered special use airspace and increased military airspace operations to impact aircraft-supported exploratory geophysical surveys, drilling, and geologic investigations.	Fox 3/Paxon MOA UAV Access
31.	Expansion of areas affected by sonic booms and noise potentially causing damage to high-altitude mountains and permafrost.	Fox 3/Paxon MOA NJT
32.	Potential for soil erosion from off-road operations in ground maneuver area	Ground Maneuver TFTA Access ISBs
33.	Potential for deep rutting from off-road excursions in areas with marginal permafrost	Ground Maneuver
34.	Soil erosion from construction of roads and facilities and from disrupted natural drainage	JAGIC TFTA Access Ground Maneuver ISBs
Water Resources		
35.	Need for single general 404 permit from all proposed military operations throughout Alaska.	All proposed actions
36.	Increase in water pollution to lakes, streams, and rivers from proposed military operations, particularly from proposed live ordnance training, unexploded ordnance, or the leaching of toxic remnants.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2202 RA JAGIC Missile Live-Fire
37.	Potential impact and loss of wetlands from construction of roads, facilities and other infrastructure.	RLOD JAGIC TFTA Access Ground Maneuver ISBs

Table 1-8. Summary of Key Issues by Resource (Continued)

Issue	Applies to EIS Proposal
Hazardous Materials and Waste	
38. Potential for live ordnance training, spent munitions, or subsequent potential unexploded ordnance to increase toxicity possibilities to humans, wildlife and other receptors on the land and in the GOA; potential to increase fire hazard where the State or Federal agencies will not fight fires because of the possibility of encountering unexploded ordnance or other materials that could pose a hazard.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2202 RA JAGIC Missile Live-Fire
39. Potential for increased military aircraft operations to cause increases in chaff residue, fuel dumping or hazardous waste spills and debris from aircraft crashes.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2202 RA NJT UAV Access JAGIC Missile Live-Fire JPADS
40. Potential for expanding areas with hazardous residues from use of munitions, and indirect effect on water resources	RLOD BAX RA Expand R-2202 RA JAGIC ISBs
41. Potential for proposed actions to pollute subsistence habitat or induce toxic substances into food chain.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2202 RA JAGIC Ground Maneuver TFTA Access ISBs Missile Live-Fire
Biological Resources	
42. Potential for proposed actions to impact wetlands and riparian areas, including fens, emergent wetlands, ponds, sloughs, watercourses, and scrub-shrub wetlands.	RLOD BAX RA Expand R-2202 JAGIC TFTA Access Ground Maneuver ISBs JPADS
43. Potential impact on State’s ability to monitor game and wildlife populations, movement corridors, and provide predator control and aerial surveys.	Fox 3/Paxon MOA RLOD UAV Access
44. Potential impacts from proposed actions to sensitive ecological factors, such as habitat quality, calving areas, rutting areas, sensitive aquatic areas, and migration routes for both mammals and birds; and potential impacts on species from noise, low-level flights, startle effects, and sonic booms, particularly calving caribou/moose, the Nelchina caribou herd, Pacific, Copper River red, and king salmon (egg shock mortality), milking cows, egg-laying chickens and bird hatchings, migratory bird breeding grounds and migration routes for both mammals and birds, trumpeter swan nesting areas, the double-crested cormorant, birds-of-prey, including peregrine falcon aeries, bald eagle nests, etc., short-tailed albatross, sea life, grizzly and black bear, and others.	All proposed actions

Table 1-8. Summary of Key Issues by Resource (Continued)

	Issue	Applies to EIS Proposal
Biological Resources (continued)		
45.	Potential impact of the proposed Realistic Live Ordnance Delivery on game management unit 20A, which is mandated for intense management by Alaska Legislature specifically the management of moose for maximum sustained yield (food).	RLOD
Cultural Resources		
46.	Impacts on archaeological resources, areas or districts; cultural landscapes; architectural resources, including National Register of Historic Places listings and historic placer mines; and Alaska Native cultural and traditional resources.	JAGIC Ground Maneuver TFTA Access ISBs Missile Live-Fire JPADS
Land Use		
47.	Proposed military operations potentially impacting remote and pristine characteristics of wilderness areas, Wild and Scenic River areas, and other specially designated areas.	Fox 3/Paxon MOA Ground Maneuver TFTA Access ISBs Missile Live-Fire JPADS
48.	Proposed airspace military operations potentially incompatible with the State and Federal land managers' ability to perform management activities and research as part of their authorized missions to manage lands for the public benefit and use.	Fox 3/Paxon MOA RLOD UAV Access
Land Use – Public Access		
49.	Proposed military airspace operations potentially causing restrictions on citizens' ground access to public lands or impacting the quality of the citizens' experience in using the lands for hunting, flight-seeing, wild gathering, mining and development, and recreation due to land closures/restrictions or closures due to unexploded ordnance.	RLOD BAX RA Expand R-2202 RA TFTA Access Ground Maneuver JAGIC ISBs JPADS
50.	Proposed military airspace operations limiting air access to private lands and public lands for multiple recreational, hunting and productive uses that depend on this mode of access.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2202 RA NJT UAV Access JAGIC Missile Live-Fire JPADS
51.	Potential indirect impact to communities and villages from proposed military airspace operations limiting essential airspace access to villages, potentially causing safety issues.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2202 RA NJT UAV Access JAGIC Missile Live-Fire JPADS

Table 1-8. Summary of Key Issues by Resource (Continued)

Issue	Applies to EIS Proposal
Land Use (continued)	
52. Potential impact from new roads and trails on the environment, surrounding land use, wild and scenic areas, and lands previously inaccessible.	TFTA Access Ground Maneuver ISBs JPADS
Land Use – Recreation	
53. Proposed military operations and subsequent safety risks, change to the environment, and increases in noise levels and air traffic potentially incompatible with Alaskan’s use of these lands, specifically recreation, hunting, subsistence, private air traffic, private commercial air traffic, climbing, hiking, mining, fishing, off-road recreation, snow machining, dog mushing, skijoring, winter climbing, backcountry skiing, trapping, exploring, skiing, boating in rivers and maritime, camping, floating bird/raptor watching.	Fox 3/Paxon MOA BAX RA Expand R-2202 RA Ground Maneuver TFTA Access ISBs JPADS
54. Proposed military airspace expansion potentially incompatible with nationally designated recreation areas, Federal campgrounds, and designated public use areas due to noise impacts.	Fox 3/Paxon MOA NJT
55. Potential impacts on hunting and hunting camps due to the potential timing of the proposals to interfere with hunting seasons, the quality of hunting experience or restricting access where heavily utilized; potential impacts on game populations from the scattering of herds, low-birth rates, and startle effects from proposed actions.	Fox 3/Paxon MOA RLOD BAX RA Expand R-2202 RA UAV Access TFTA Access Ground Maneuver ISBs Missile Live-Fire
56. Proposed military airspace operations potentially causing air pollution and impacting views of Mount McKinley and clear skies that contribute to the scenic and pristine qualities of specially designated areas.	Fox 3/Paxon MOA
Infrastructure and Transportation	
57. Potential impact from the proposed military operations on the regional transportation infrastructure including access, quantity, and the quality of the roads and the funds and resources required to maintain the routes.	TFTA Access
58. Potential impact from the proposed military operations on civilian aviation access and transport of residents, tourist companies, backcountry users, campers, hunters, fishers, and recreational flyers.	Fox 3/Paxon MOA BAX RA Expand R-2202 RA NJT UAV Access JAGIC Missile Live-Fire JPADS
59. Potential impact of proposed military operations on other new proposed projects, including dams and bridges and on communication systems, such as radios, cellular phones, television, etc.	All proposed actions
60. Potential impact from the proposed military operations to transportation along waterways by boat, particularly in the ocean.	All proposed actions
Socioeconomics	
61. Positive or negative impacts on the economy and local development from the proposed actions.	All proposed actions
62. Potential impact from proposed actions on subsistence hunting and sustenance.	All proposed actions
63. Population and demographic impacts from proposed military operations.	All proposed actions

Table 1-8. Summary of Key Issues by Resource (Continued)

	Issue	Applies to EIS Proposal
Socioeconomics (continued)		
64.	Potential for disruption from proposed airspace operations to resident population's personal freedoms, access to homes and recreation areas, quality of life, including desire for solitude, peace and quiet, and wilderness experience.	All proposed actions
65.	Impacts on property values from proposed military operations.	All proposed actions
66.	Potential impact from proposed actions on intrinsic qualities of the state that support tourism and local business and commerce, including the fishing industry, hunting, fishing and adventure guides and flight-seeing.	All proposed actions
67.	Potential impact from proposed military airspace operations to businesses dependent on air travel, such as mining and hunting, fishing and adventure guides and flight-seeing.	Fox 3/Paxon MOA BAX RA Expand R-2202 RA NJT UAV Access JAGIC Missile Live-Fire JPADS
Subsistence		
68.	Proposed military operations potentially restricting subsistence hunting and harvesting by limiting access by air or surface.	All proposed actions
69.	Potential of proposed NJT to impact subsistence hunters and hunting.	NJT
70.	Potential conflict between military operations with subsistence hunting due to the potential timing of the military operations in the fall, impacts on game populations from the scattering of herds, low-birth rates, and noise startle effects or pollution.	All proposed actions
Environmental Justice		
71.	Potential for disproportionately high and adverse human health or environmental effects on low-income populations, minorities, and children associated with airspace management, noise, safety, pollution, land use/access, socioeconomic, and subsistence impacts due to proposed military operations.	All proposed actions

Key: AGL=above ground level; MOA=Military Operations Area; PM_{2.5}=particulate matter 2.5 microns or less in diameter; RNAV=Area Navigation; UXO=unexploded ordnance; VFR=Visual Flight Rule.

Abbreviation	Proposed Action
Fox 3/Paxon MOA	Fox 3 MOA Expansion and New Paxon MOA
RLOD	Realistic Live Ordnance Delivery
BAX RA	Battle Area Complex (BAX) Restricted Area Addition
Expand R-2205 RA	Digital Multi-Purpose Training Range (Expand R-2205) Restricted Area
NJT	Night Joint Training
UAV Access	Unmanned Aerial Vehicle (UAV) Access
TFTA Access	Tanana Flats Training Area (TFTA) Roadway Access
Ground Maneuver	Enhanced Access to Ground Maneuver Space
JAGIC	Joint Air-Ground Integration Complex
ISBs	Intermediate Staging Bases
Missile Live-Fire	Missile Live-Fire for AIM-9 and AIM-120 in the Gulf of Alaska
JPADS	Joint Precision Airdrop System Drop Zones

[Table 1-9](#) provides the number of scoping comments made for each proposal by the resource or impact area.

Table 1-9. Scoping Comments by Proposed Action and EIS Topic Area

EIS Topic	Number of Comments by JPARC Proposed Actions											Total
	General	Fox 3/ Paxon	Realistic Live Ordnance Delivery	JCALF	UAV Corridors	Night Joint Train- ing	Proposed Missile Live-Fire	Enhanced Ground Maneuver Space Access	JAGIC	ISBs	JPADS	
Proposed Action and Alternative(s)	248+	31	33	14	34	17	16	11	3	9	3	419+
Purpose and Need	21	20	0	0	3	2	1	3	2	3	0	55
Suggested New Alternative(s)	82+	61+	4	1	16	1	0	3	1	2	0	171+
Airspace Management and Use	136+	286+	3	15	51+	6	0	0	0	0	0	497+
Noise	51+	115+	1	1	1	7	2	0	0	0	0	178+
Health, Safety, and Security	75+	107	7	9	13	2	2	0	0	1	0	216+
Air Quality	4	2	1	0	0	0	0	0	0	0	0	7
Terrestrial Resources	1	1	0	0	0	0	0	0	0	0	0	2
Water Resources	2	2	0	0	0	0	0	0	0	0	0	4
Hazardous Materials and Waste (HTRW, Munitions, Solid Waste, Regulatory Programs)	39	2	4	0	0	0	2	1	0	0	0	48
Biological Resources	77+	133+	3	2	2	3	5	1	0	0	0	226+
Cultural Resources	3	2	1	0	0	0	0	0	0	0	0	6
Land Use	180+	261+	4	1	1	4	2	6	0	0	1	460+
Infrastructure and Transportation	18	5	0	0	0	0	1	0	0	0	0	24
Socioeconomics	68+	86	1	0	7	0	1	1	0	0	0	164+
Environmental Justice and Risks to Children	2	1	0	0	2	0	0	0	0	0	0	5
Other	87+	0	0	0	0	0	0	0	0	0	0	87+
Total	1,094+	1,115+	62	43	130+	42	32	26	6	15	4	2,569

Key: EIS=environmental impact statement; HTRW=hazardous, toxic, and radioactive waste; ISB=Intermediate Staging Base; JAGIC=Joint Air-Ground Integration Complex; JCALF=Joint Combined Arms Live Fire; JPADS=Joint Precision Airdrop System; UAV=unmanned aerial vehicle; + = there were at least this many scoping comments pertaining to this EIS topic area for this proposed action.

1.6.8 Draft EIS Public Comment Process

NEPA requires a minimum 45-day draft EIS review process. For this project, the draft EIS review process lasted just over a 100 days. The process began with EPA’s publication of its weekly notice of receipt of draft EIS in the *Federal Register* on March 30, 2012. A Notice of Availability of the draft EIS and the associated public hearings was published in the *Federal Register* on March 30, 2012, and in April, notices were placed in six newspapers: *Anchorage Daily News*, *Alaska Star*, *Copper River Record*, *Fairbanks Daily News-Miner*, *Delta Wind*, and *The Frontiersman*. Notification was also provided in March and April, through the project website (www.jparceis.com), press releases, public service announcements, posted fliers in surrounding communities, and letters or mailers sent to entities on the project mailing list. ALCOM distributed either a hard copy or a compact disc of the draft EIS to individuals who requested a copy and to agencies and library repositories throughout the State of Alaska. Through these notifications and public hearings, ALCOM requested the public, agencies, and interested stakeholders to provide oral or written comments on the draft EIS.

Formal public hearings were held May 11 through 23, in the middle of the public draft EIS review period. The closing date for the draft EIS review period was June 7, 2012. After receiving comments requesting an extension of the comment period, ALCOM extended the comment period to July 9, 2012, six weeks beyond the original timeline. [Table 1-10](#) outlines the public hearings and the number of attendees and verbal and written comments presented.

***JPARC Modernization and Enhancement
Environmental Impact Statement***

ALCOM’s intent for the draft EIS review process was to provide the public and government entities with a copy of the draft EIS, a forum to learn more about the draft EIS, and ample opportunity to comment on the draft EIS. Air Force and Army representatives explained why the JPARC proposals are necessary, described the proposed alternatives, summarized the NEPA process, and provided a tentative schedule of milestones. Through handouts and notification materials, ALCOM clarified that comments should be submitted at the public hearings; to ALCOM Public Affairs, 9480 Pease Avenue, Suite 120, JBER, Alaska 99506; via phone at 907–552–2341; or via the EIS website at www.jparceis.com.

ALCOM made clear that public comments received by the close of the comment period would be responded to in the final EIS and considered during final EIS preparations.

Table 1-10. Public Hearings

Date/Time	Location	Number of Attendees Checking in at Sign-in Table	Number of Written Comments Submitted	Number of Public Testimonies	Number of Persons Testifying
Friday, May 11, 2012 5:00–9:00 p.m.	University of Alaska, Anchorage, Lucy Cuddy Hall Anchorage, AK	15	0	4	3
Monday, May 14, 2012 5:00–9:00 p.m.	Palmer Community Center (The Railroad Depot) Palmer, AK	24	2	16	12
Tuesday, May 15, 2012 5:00–9:00 p.m.	Lake Louise Lodge Glennallen, AK	10	0	0	0
Wednesday, May 16, 2012 5:00–9:00 p.m.	Caribou Hotel Glennallen, AK	15	1	4	4
Thursday, May 17, 2012 5:00–9:00 p.m.	Paxson Lodge Paxson, AK	13	0	11	9
Friday, May 18, 2012 5:00–9:00 p.m.	Alaskan Steakhouse and Motel Delta Junction, AK	20	3	7	6
Saturday, May 19, 2012 10:00 a.m.–2:00 p.m.	University of Alaska Fairbanks, William R. Wood Center Fairbanks, AK	21	1	10	8
Saturday, May 19, 2012 4:00–8:00 p.m.	Univ. of Alaska Fairbanks, William R. Wood Center Fairbanks, AK	14	0	3	2
Monday, May 21, 2012 5:00–9:00 p.m.	Tri-Valley Community Center, Healy, AK	7	2	3	3
Tuesday, May 22, 2012 5:00–9:00 p.m.	Swiss Alaska Inn Talkeetna, AK	15	2	2	2
Wednesday, May 23, 2012 5:00–9:00 p.m.	Menard Memorial Sports Center Wasilla, AK	18	2	2	2
TOTALS		172	13	62	51

Key: AK=Alaska.

1.6.9 Final EIS Preparation

Preparation, coordination, approval, filing, and public notice of the final EIS are the same as the process undertaken for the draft EIS, except that the public need not be invited to comment during the 30-day post-filing waiting period in accordance with Army and Air Force NEPA-implementing regulations.

Once the draft EIS public comment period closed, the Army and Air Force conducted a thorough and rigorous review of all of the comments received on the draft EIS. A total of 269 comment submittals were received on the draft EIS. Each comment submittal was then broken out or “bracketed” into specific comments, which totaled 1,363 bracketed comments. The Army and Air Force reviewed and responded specifically to each comment in the final EIS. A more detailed summary of the draft EIS review process is contained in Appendix M, *Draft EIS Review Process and Public Hearing Summary*. Appendix N, *Draft EIS Comments and Responses*, contains copies of public and agency comments received during the draft EIS review process and responses to those comments.

1.7 COMPARATIVE ANALYSIS OF ANTICIPATED ENVIRONMENTAL IMPACTS BY PROPOSAL AND RESOURCE AREA

Definitive and programmatic actions analyzed in this EIS are identified in Section [1.5.3.1](#) and [1.5.3.2](#). More detailed descriptions of these proposed actions and alternatives are provided in Chapter [2.0](#). Summarized potential impacts are shown below for each proposed action in each resource area analyzed in the EIS. For proposals with multiple alternatives, the table reflects the overall findings for the highest potential change for each of the resource topics. Specific details regarding significance determinations associated with the color ratings for each resource area are provided in Chapter [3.0](#). The respective sections where these determinations are discussed are listed in [Table 1-11](#).

[Table 1-12](#) through [Table 1-17](#) summarize the impacts for each definitive proposal by resource or impact area and the mitigation measures developed by the Army and Air Force to avoid, reduce, or provide management actions to mitigate significant adverse impacts. In cases where a resource or impact area is not affected by the proposal, “No Effect” is stated in the table.

Table 1-11. Comparative Analysis of EIS Proposed Actions and Alternatives

Resource	Definitive Proposals						Programmatic Proposals*					
	Fox 3 MOA Expansion and New Paxon MOA	Realistic Live Ordnance Delivery	Battle Area Complex Restricted Area	Expand Restricted Area R-2205	Night Joint Training	Unmanned Aerial Vehicle Access	Enhanced Ground Maneuver Space	Tanana Flats Training Area Roadway Access	Joint Air-Ground Integration Complex	Intermediate Staging Bases	Missile Live Fire for AIM-9 and AIM-120 in the Gulf of Alaska	Joint Precision Airdrop System Drop Zones
Section Number												
Airspace Management and Use	3.1.1 ^a	3.2.1	3.3.1 ^a	3.4.1	3.5.1	3.6.1 ^a	3.7.1	3.8.1	3.9.1	3.10.1	3.11.1	3.12.1
Noise	3.1.2	3.2.2	3.3.2	3.4.2	3.5.2	3.6.2	3.7.2	3.8.2	3.9.2	3.10.2	3.11.2	3.12.2
Safety - Flight	3.1.3 ^a	3.2.3	3.3.3 ^a	3.4.3 ^a	3.5.3 ^a	3.6.3 ^a	3.7.3	3.8.3	3.9.3	3.10.3	3.11.3	3.12.3
Safety - Ground	3.1.3	3.2.3 ^a	3.3.3 ^a	3.4.3 ^a	3.5.3	3.6.3	3.7.3	3.8.3	3.9.3	3.10.3	3.11.3	3.12.3
Air Quality	3.1.4	3.2.4	3.3.4	3.4.4	3.5.4	3.6.4	3.7.4	3.8.4	3.9.4	3.10.4	3.11.4	3.12.4
Physical Resources – Soils/perma frost	3.1.5	3.2.5 ^a	3.3.5	3.4.5	3.5.5	3.6.5	3.7.5	3.8.5	3.9.5	3.10.5	3.11.5	3.12.5
Water Resources	3.1.6	3.2.6 ^a	3.3.6 ^a	3.4.6	3.5.6	3.6.6	3.7.6	3.8.6	3.9.6	3.10.6	3.11.6	3.12.6
Floodplains	3.1.6	3.2.6	3.3.6	3.4.6	3.5.6	3.6.6	3.7.6	3.8.6	3.9.6	3.10.6	3.11.6	3.12.6
Hazardous Materials & Waste	3.1.7	3.2.7	3.3.7 ^a	3.4.7 ^a	3.5.7	3.6.7	3.7.7	3.8.7	3.9.7	3.10.7	3.11.7	3.12.7
Biological Resources	3.1.8 ^a	3.2.8	3.3.8 ^a	3.4.8 ^a	3.5.8 ^a	3.6.8	3.7.8	3.8.8	3.9.8	3.10.8	3.11.8	3.12.8
Wetlands	3.1.8	3.2.8	3.3.8	3.4.8	3.5.8	3.6.8	3.7.8	3.8.8	3.9.8	3.10.8	3.11.8	3.12.8
Cultural Resources	3.1.9	3.2.9	3.3.9 ^a	3.4.9 ^a	3.5.9	3.6.9	3.7.9	3.8.9	3.9.9	3.10.9	3.11.9	3.12.9
Land Use – Land Management and Use	3.1.10 ^a	3.2.10 ^a	3.3.10 ^a	3.4.10 ^a	3.5.10 ^a	3.6.10	3.7.10	3.8.10	3.9.10	3.10.10	3.11.10	3.12.10
Land Use – Public Access	3.1.10 ^a	3.2.10 ^a	3.3.10 ^a	3.4.10	3.5.10 ^a	3.6.10	3.7.10	3.8.10	3.9.10	3.10.10	3.11.10	3.12.10
Land Use – Recreation	3.1.10 ^a	3.2.10 ^a	3.3.10	3.4.10	3.5.10 ^a	3.6.10	3.7.10	3.8.10	3.9.10	3.10.10	3.11.10	3.12.10
Infrastructure and Transportation	3.1.11	3.2.11	3.3.11	3.5.11	3.5.11	3.6.11	3.7.11	3.8.11	3.9.11	3.10.11	3.11.11	3.12.11
Socioeconomics	3.1.12 ^a	3.2.12 ^a	3.3.12 ^a	3.4.12	3.5.12 ^a	3.6.12	3.7.12	3.8.12	3.9.12	3.10.12	3.11.12	3.12.12
Subsistence	3.1.13 ^a	3.2.13	3.3.13 ^a	3.4.13 ^a	3.5.13	3.6.13 ^a	3.7.13	3.8.13	3.9.13	3.10.13	3.11.13	3.12.13
Environmental Justice	3.1.14	3.2.14	3.3.14	3.4.14	3.5.14	3.6.14	3.7.14	3.8.14	3.9.14	3.10.14	3.11.14	3.12.14

COLOR KEY:

No beneficial or adverse impact.	Section includes proposed management actions.
Potential for adverse impact, but not significant; may require management actions or mitigations to avoid or reduce impacts.	Section includes proposed management actions/mitigations.
Potential for significant adverse impacts; requires management actions or mitigations to avoid or reduce impacts.	Section includes proposed management actions/mitigations.

* Analysis is based upon available data. Actual impacts have not been evaluated and mitigations have not been identified for Programmatic proposals.

a. Mitigations and/or management actions are proposed for this resource area under this proposal.

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
<p>Airspace Management and Use</p>	<p>The annual number of aircraft sortie-operations would not increase significantly above baseline levels for both MFEs and other routine training. This baseline is inclusive of up to six annual MFEs, routine training operations, and the recent basing of six additional F-22s concurrent with the drawdown of F-15 aircraft at JBER.</p> <p>With the expanded Fox 3 MOA being closer to JBER, it is estimated that about half of the current Stony MOA fighter sorties would be conducted in the Fox 3 MOA/ATCAA if this proposal is implemented.</p> <p>With no significant increase in representative operational levels in this airspace, the higher density MFE aircraft sorties would be dispersed over a greater area on a daily basis than what currently occurs.</p> <p>The extent of airspace impacts would depend on the daily use of the expanded Fox 3 and new Paxon MOAs. (See Table 2-2).</p> <p>May have moderate to significant impacts on airway IFR traffic and/or the airspace used by Anchorage ARTCC and/or Fairbanks TRACON. The FAA has expressed concerns that the Paxon MOA, when active, would result in the closure of three airways (V481, V515, and V444) forcing small or low flying aircraft to fly VFR between Gulkana/Northway to Delta Junction/Fairbanks.</p> <p>May have minimal to moderate impacts on jet/RNAV routes.</p> <p>The potential for interactions between</p>	<p>Impacts are the same as Alternative A, with the following exceptions:</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p> <p>The federal airways to the west and south of the existing/proposed Fox 3 boundaries should be sufficiently distant and separated from those airways so as to have minimal effects on their use. The more northerly proposed boundary should also not have impacts on the terminal airspace used by the FAA to separate and sequence airport air traffic through this area.</p> <p>The adjusted Fox 3 MOA boundary proposed for this alternative is sufficiently distant from the jet routes in Alternative A. This alternative would have minimal impacts on the jet/RNAV route structure in this region.</p> <p>The southern boundary of this proposed MOA would be more distant from those areas between Glennallen and Anchorage where much of the VFR traffic typically operates and would be unaffected by this alternative.</p> <p>This alternative would be more distant from public airports and private airfields that would be potentially affected by the Alternative A.</p>	<p>This alternative proposes no changes to the current boundaries and altitudes of the existing Fox 3 MOA.</p> <p>As no significant increases in the current military flight operations are projected for the future, the No Action Alternative would not affect the current military and civil aviation airspace uses within the region and would remain as under current conditions.</p>

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>military and VFR aircraft would depend on the daily densities, time frames, altitudes, and locations of both the military and VFR aircraft operations.</p> <p>Expanding the airspace for this proposal with much lower altitudes would require increased vigilance by both military and civilian pilots to maintain continued awareness of each other's presence while sharing this MOA airspace when it is in use.</p>		
Noise	<p>Subsonic aircraft noise levels beneath the Paxon MOA/ATCAA would increase from 37 to 54 dB L_{dnmr}, which is below levels of concern established by EPA for any land use.</p> <p>Decreasing altitudes would result in increased individual overflight noise events.</p> <p>Increases in noise levels in areas not currently overlain by MOAs would be greater than 10 dB and would be expected to be easily noticeable, because the ambient noise level in the ROI is low.</p> <p>The average number of sonic booms per day near the center of the Fox 3 MOA/ATCAA airspace would increase by less than one per day from 4.6 per day to 5.2.</p> <p>The intensity of the proposed noise levels does not exceed widely accepted impact thresholds, below which significant noise impacts do not typically occur. The context and degree of change are such that the change would be easily noticed and be expected to be considered significant by a substantial percentage of the affected population.</p>	<p>The area of potential impact would be reduced by approximately 1.16 million acres.</p> <p>Beneath Fox 3 MOA/ATCAA, subsonic noise levels would increase from 39 to 50 dB L_{dnmr}.</p> <p>Noise levels beneath Paxon MOA/ATCAA would increase from 37 to 54 dB L_{dnmr}.</p> <p>Increases in supersonic noise levels would be the same as for Alternative A.</p>	<p>Under the No Action Alternative, there would be no change to existing airspace structure or existing baseline training operations. No change in noise levels would occur, and they would remain as under current existing conditions.</p>

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>The risk of hearing loss associated with proposed training operations would be negligible.</p>		
<p>Flight Safety</p>	<p>MFES and routine training would only be conducted at the lower altitudes in the Fox 3 MOA; they would be limited to 14,000 feet MSL and above in the proposed Paxon MOA.</p> <p>The potential for aircraft mishaps under this alternative would be low to moderate. The number of flying days/hours by both MFE and routine training activities are not projected to increase significantly over current levels.</p> <p>The probability of an aircraft crash into a populated area is low, given the very low population density in the proposed airspace.</p> <p>The potential for near misses or midair collisions between VFR aircraft and low-altitude, high-speed military aircraft would be moderate to significant.</p> <p>No midair collisions and few reported near misses have occurred within the existing JPARC airspace.</p> <p>The potential for bird/wildlife-aircraft strikes would be low to moderate and the existing Air Force BASH programs and procedures would include consideration of additional means for monitoring and reacting to heightened risks of bird strikes.</p>	<p>The potential for aircraft mishaps and bird/wildlife-aircraft strikes would be generally the same as discussed for Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>The No Action Alternative would involve continuation of those plans, procedures, and processes currently used for minimizing flight safety risks for all flight activities within the existing airspace.</p>

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
Ground Safety	Significant impact potential caused by the use of chaff and flare during flight training activities is considered to be low.	Same as Alternative A. The area of potential impact would be reduced by approximately 1.16 million acres.	The No Action Alternative would involve continuation of those plans, procedures, and processes currently used for minimizing ground safety risks for all flight activities within the existing airspace.
Air Quality	The use of chaff would not result in significant air quality impacts. Criteria pollutant emissions resulting from flight operations would not exceed applicable PSD significance thresholds of 250 tons per year, resulting in less-than-significant adverse air quality impacts. (See Table 3-8.) Given that the project region is in attainment of all NAAQS, a conformity determination is not necessary. Significant impacts on public health from HAPs emitted in association with aircraft operations would not occur. Significant impacts to Denali National Park would not occur.	Same as Alternative A. The area of potential impact would be reduced by approximately 1.16 million acres.	Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at the Fox 3 and Stony MOAs and would not result in any additional air quality impacts.
Physical Resources	No Effect		
Water Resources	No Effect		
Hazardous Materials and Waste	There would not be an increase in chaff and flare use within the overall airspace and would be redistributed over a larger expanse of airspace. The use of temporary dry targets for practice bombing without the actual release of ordnance would not result in significant adverse impacts.	Same as Alternative A. The area of potential impact would be reduced by approximately 1.16 million acres.	Under the No Action Alternative, there would be no addition to the current Fox 3 MOA configuration and no new Paxon MOA. Therefore, hazardous materials-related impacts would be the same as those occurring under existing conditions; no additional impacts would occur.
Biological	Wildlife species would be exposed to	Same as Alternative A.	Under the No Action Alternative, the

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
Resources	<p>overflight by military aircraft flying as low as 500 feet AGL, potentially causing altered behavior or metabolic effects.</p> <p>Wildlife responses diminish with increasing altitude of overflight or increasing slant distance.</p> <p>Reported wildlife responses to overflight are largely behavioral and short-term. Some short-term physiological changes (e.g., increased heart rate) have also been measured.</p> <p>Studies of waterfowl, songbirds and raptors, including bald and golden eagles, vary in their responses to military jet overflight, but documented responses have been limited to short-term behavioral responses and no effects that would be measurable at a population level have been documented.</p> <p>Fish in their native habitat would not be affected at the sound levels associated with military aircraft overflight as low as 500 feet AGL.</p> <p>Potentially sensitive areas such as the Gulkana hatchery, which is the largest sockeye salmon hatchery in the world (PWSAC 2012), could be affected by overflight noise, especially during the incubation period when the eggs are susceptible to any type of noise or shock.</p> <p>For wildlife not previously exposed to sonic booms some short-term behavioral responses may be observed but would not result in any population-level effects.</p>	<p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>horizontal and vertical boundaries of the existing Fox 3 MOA would remain the same and training would be expected to continue as permitted within the existing MOA. Wildlife resources would remain as they currently exist.</p>

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	Chaff and flare use would not impact wildlife resources to any significant degree.		
Cultural Resources	<p>As with previous analyses for existing Alaska MOAs (Air Force 1997-1), no significant impacts are anticipated to cultural resources from the expansion of current Fox 3 MOA boundaries, the addition of a new MOA, and their use for flight training.</p> <p>Compliance with all requirements for Tribal consultation has been completed. No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed expansion of Fox 3 MOA boundaries and the creation of the new Paxon MOA.</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>Under the No Action Alternative there would be no changes to the existing Fox 3 MOA and no new Paxon MOA. Existing use of the MOA would continue under this alternative, and traditional cultural resources would continue to be managed in compliance with Federal law and Air Force regulations.</p>
Land Use	<p>This proposal alternative would have no impact on land status or ownership.</p> <p>Subsonic noise levels in the underlying areas would increase substantially by about 17 dB under the new Paxon MOA and by about 10 dB under existing Fox 3 and the Fox 3 expansion area. However, the highest projected level under the new Paxon MOA, 54 dB L_{dnmr}, is below levels of concern established by EPA for any land use.</p> <p>Overall, changes to quiet settings could constitute an effect on valued natural and pristine areas in the region, but would not be expected to change the land use of the area but could be annoying to individuals who experience a startling event.</p> <p>Minimal impact on land use from chaff and flare use is expected.</p> <p>Ground access and travel is not affected by this proposal. Indirect effects of changes in</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>There would be no changes to the current Fox 3 MOA configuration and altitudes or proposed addition of the Paxon MOA under the No Action Alternative. Therefore, no additional impacts on land use, public access, or recreation would occur.</p>

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>civilian air access could affect access to specific communities and areas and associated uses and activities.</p> <p>No direct spatial or temporal impacts on availability of recreational opportunities would occur under this alternative.</p> <p>Indirect effects of changes in civilian air access would affect spatial and temporal availability to specific areas, and associated uses and activities.</p>		
Infrastructure & Transportation	No Effect		
Socioeconomics	<p>The major concerns for socioeconomic resources associated with the proposed action, as identified by scoping and draft EIS public review comments, are potential impacts to property values and commercial and general aviation.</p> <p>Impacts on key industries such as energy development and mining are expected to be low.</p> <p>Potential civil aviation impacts may include significantly increased flight distances and increased flight time when the airspace is active and either pilots elect not to transit the MOAs, or pilots flying to and from private airports or airfields are directed by ATC to divert their flight routes to avoid the active airspace and military activities. These potential aviation impacts would result in economic impacts due to additional operating costs (primarily related to increased fuel use) associated with avoiding active airspace, and the costs of any expended efforts in tracking the airspace status through available advisory</p>	<p>The area of potential impact would be reduced by approximately 1.16 million acres.</p> <p>Alternative E avoids the area near Lake Louise and there are fewer persons identified overall under the airspace and thus fewer persons who could be potentially impacted under this alternative.</p> <p>Commercial and general aviation would remain similar to those as described under Alternative A but at a reduced amount of affected airspace, as noted above.</p>	<p>Under the No Action Alternative, no new airspace would be created and no expansion to the existing Fox 3 MOA would be created. Existing activities in the Fox 3 MOA would continue under the current procedures and guidelines. Therefore, no changes to socioeconomic resources from current existing conditions are expected.</p>

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<p>services.</p> <p>Under Alternative A, there are approximately 206 persons in the census block that has been defined under the restricted airspace. The low population density under the proposed low-level airspace makes it highly unlikely that noise from flight activity would have significant social or economic impacts on the region.</p>		
Subsistence	<p>The expansion of the Fox 3 MOAs and the establishment of the Paxon MOA would not restrict ground access to traditional use areas or hunting locations beneath the new airspace.</p> <p>Subsistence users would have the same access and availability to subsistence resources from the ground as under current conditions.</p> <p>The new and expanded airspace, however, may result in a restriction of access by aircraft to areas or landing fields below or in the vicinity of the airspace. Aircraft are often used in the subsistence harvests, particularly for times of year in which traditional use areas are not accessible by ground vehicles.</p> <p>Wildlife surveys are factored into the impact assessment, as they are conducted by aircraft to gauge populations and health, information that is then taken into consideration when the ADFG determines subsistence priorities and the amount of takes permitted.</p> <p>Noise and residual materials from chaff and flares also have the potential to affect the wildlife and vegetation resources harvested</p>	<p>Same as Alternative A.</p> <p>The area of potential impact would be reduced by approximately 1.16 million acres.</p>	<p>Under the No Action Alternative, flight training would continue in the existing Fox 3 MOA with no expansions or new airspace being created. Civil aviation would be permitted under the same guidelines described in Section 3.1.1, and wildlife/vegetation species would be affected by the conditions described in Section 3.1.8. Therefore, subsistence resources and access to those resources would be the same as described in Section 3.1.13.</p>

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	by subsistence users but not to a significant adverse degree.		
Environmental Justice	Impacts from airspace management, noise, flight safety, socioeconomics, and subsistence were assessed for environmental justice in accordance with EO 12898. It was determined they would not create disproportionate adverse effects on minority and low-income populations or children.	Same as Alternative A. The area of potential impact would be reduced by approximately 1.16 million acres.	There would be no additional disproportionately high and adverse effects on minority and low-income populations or children from the No Action Alternative. The Fox 3 MOA would remain as currently configured.
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> <p>Special Use Airspace Information System (Airspace Management; Safety-Flight; Land Use-Access) Continue SUAIS in all areas where radio coverage exists; this includes a majority of the area beneath the proposed Fox 3 and Paxon MOAs. The SUAIS Letter of Agreement with the FAA will be updated to include current radio sites and any new MOAs to be covered by the system. The effectiveness of this mitigation in maintaining a safe, usable airspace can be seen in today’s northern MOAs, which have minimum altitudes even lower than proposed here. The Air Force safely shares large expanses of airspace with civilian aviation utilizing the communication network known as SUAIS. Proposed new, low MOAs already have large areas of SUAIS coverage that would enable safe, simultaneous use of these new airspaces by civil and military aircraft.</p> <p>Eagle and Migratory Bird Avoidance (Biological Resources) Limit minimum altitude to 1,000 feet AGL in the new Fox 3 and Paxon MOAs from March 15 to September 30 (nesting season) to comply with the Bald and Golden Eagle Protection Act. Subject to available funding, the Air Force may coordinate with USFWS to establish habitat models and/or conduct bald and golden eagle nest surveys to establish low flying (500 feet AGL) areas outside of eagle habitat during the nesting season (March 15 to September 30).</p> <p>Wildlife Avoidance (Biological Resources) Modify existing Letter of Agreement with ADFG to maintain avoidance areas over caribou and Dall sheep populations under the new MOAs during critical lifecycle periods. Coordination with wildlife agencies will continue to determine specifics, including seasons and minimum overflight altitudes; location of herds is monitored/reported by ADFG.</p> <p>VFR Flight Corridors (Airspace management; Safety-Flight; Biological Resources; Land Use-Management, Access, Recreation; Socioeconomics; Subsistence) Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.</p> 			

Table 1-12. Summary of Impacts for Fox 3 MOA Expansion and New Paxon MOA (Continued)

Resource Area	Alternative A	Alternative E (Preferred Alternative)	No Action Alternative
	<ul style="list-style-type: none"> National Wild and Scenic Rivers Protection (Biological Resources; Land Use-Management, Recreation) For the period of May 15 to September 30, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-nautical mile buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake). Concentrated Activity Areas (Land Use-Management, Recreation; Socioeconomics) Comply with flight avoidance areas established by the 11th Air Force Airspace and Range Team and listed in the 11th Air Force Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th Air Force Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist). 		

Key: ADFG=Alaska Department of Fish and Game; AGL=above ground level; ARTCC=Air Route Traffic Control Center; ATC=Air Traffic Control; ATCAA=Air Traffic Control Assigned Airspace; BASH=bird/wildlife-aircraft strike hazard; dB=decibel; EIS=environmental impact statement; EO=Executive Order; EPA=U.S. Environmental Protection Agency; FAA=Federal Aviation Administration; HAP=hazardous air pollutant; IFR=Instrument Flight Rules; JBER=Joint Base Elmendorf-Richardson; combination of Elmendorf AFB and Fort Richardson; L_{dnm} =onset rate-adjusted day-night average sound level; MFEs=major flying exercise; MOA=Military Operations Area; MSL=mean sea level; NAAQS=National Ambient Air Quality Standards; PSD=prevention of significant deterioration; RNAV=Area Navigation; ROI=region of influence; SUAIS=Special Use Airspace Information Service; TRACON=Terminal Radar Approach Control; VFR=Visual Flight Rules.

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
Airspace Management and Use	<p>Use of R-2202B/C/D is not projected to increase significantly above current representative levels under this proposal since live ordnance deliveries would be conducted by those fighter aircraft types currently conducting other ordnance deliveries on the Oklahoma Impact Area.</p> <p>The proposed expansion of this restricted area would only be activated as needed.</p> <p>The scheduled and real-time status of this restricted airspace would be available on the SUAIS and other information sources.</p> <p>The extent to which this Alternative</p>	<p>Alternative B contains all of the elements of Alternative A but would also include establishing a new restricted area to allow realistic munitions drops in both the Oklahoma and Blair Lakes Impact Areas. Only inert bombs would be dropped at Blair Lakes Impact Area under RLOD.</p> <p>When activated, this airspace would restrict other uses of the Eielson MOA not associated with the live ordnance delivery missions. The planned use of this airspace would require coordination among the other using agencies to schedule and prioritize their respective mission requirements for this SUA.</p>	<p>The No Action Alternative would not result in any changes from existing conditions to the military and civil uses of this airspace environment.</p>

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>may impact civil aviation airspace use in the region of the expanded R-2202 would be minimal.</p> <p>The area proposed for the R-2202 expansion would have no direct impacts on VFR flyways.</p> <p>No public airports or private airfields are located within the immediate area of the proposed R-2202 expansion and others are sufficiently distant from this proposal so as not to be directly impacted.</p>	<p>Restricted airspace linking the existing restricted areas would not permit civil aviation use of this airspace when activated for live ordnance deliveries.</p> <p>No public airports or private airfields are located within the immediate area of the proposed R-2202 expansion and others are sufficiently distant from this proposal so as not to be directly impacted.</p>	
Noise	<p>The number of sortie-operations conducted in R-2202 would not be expected to change, and aircraft noise levels would remain approximately the same as under baseline conditions.</p> <p>Sonic booms generated at these altitudes generally do not reach the ground due to atmospheric refraction and when they do intersect the ground are attenuated by the long distances travelled.</p> <p>The number of live GBU-32 (1,000-pound-class-bombs) dropped per year would be expected to increase from 70 to 200 while the number of SDBs dropped annually would remain the same as under baseline conditions.</p> <p>Noise levels exceeding 62 dB CDNL would not extend beyond the boundaries of DoD-owned land.</p> <p>The proposed incremental increase in munitions use at the geographically</p>	<p>Inert munitions generate noise on impact that is noticeable only in the immediate vicinity of the impact location.</p> <p>Noise impacts in the Blair Lakes Impact Area under Alternative B would be minimal, and munitions usage and noise impacts in the Oklahoma Impact Area would be the same as under Alternative A.</p> <p>Impacts do not exceed the significance thresholds established for this action.</p>	<p>Under the No Action Alternative, restricted area airspace extents would remain as they are currently, and no changes to munitions usage would occur. There would be no change from existing conditions for noise under the No Action Alternative.</p>

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	remote Oklahoma Impact Area would not result in noise impacts that would exceed significance thresholds established for this action.		
Flight Safety	<p>The overall potential for any flight safety risks under this alternative would be low to moderate.</p> <p>Aircraft sortie-operations and the overall number of flying hours within the existing and proposed airspace would not increase significantly above current representative levels, therefore, the potential risk for increased aircraft mishaps, bird-aircraft strikes or near misses/midair collisions should also not increase.</p>	<p>The overall potential for any flight safety risks under this alternative would be low to moderate.</p> <p>The probability of any flight safety risks within this airspace, when active, would be relatively low, as discussed for Alternative A.</p>	<p>The No Action Alternative would involve maintaining the current use of this airspace as well as those plans, procedures, and processes in place for minimizing flight safety risks within the existing airspace.</p>
Ground Safety	<p>Existing procedures for range safety and control would continue to be implemented for proposed training activities in the Oklahoma Impact Area, as well as within land areas underlying the proposed expanded R-2202 airspace.</p> <p>For areas outside of the military land boundary, the Air Force would develop a Range Safety and Access Plan following the ROD for managing and ensuring public safety on non-military land.</p> <p>As required, training areas would be cleared of UXO or munitions debris to reduce related hazards and provide a safe and constructive training environment for all training units. Any cleared areas that become contaminated during live-fire</p>	<p>Existing procedures for range safety and control, as described under Alternative A, would be implemented for proposed activities in the existing targets at the Oklahoma and Blair Lakes Impact Areas, as well as within land areas underlying the proposed expanded R-2211 and R-2202 airspaces.</p> <p>Existing procedures for UXO and munitions safety, as described under Alternative A, would be implemented for the proposed activities.</p> <p>There are no aspects of Alternative B associated with public access control not previously discussed under Alternative A. Consequently, significant impacts are not expected to occur.</p> <p>All fire management and response</p>	<p>No change in ground operations would occur under the No Action Alternative; therefore, there would be no additional changes to existing conditions of public health and safety.</p>

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>exercises/training would again be cleared when the exercise is completed.</p> <p>Current procedures designed to limit unauthorized public access would continue when ordnance delivery exercises are taking place. These procedures include marking prohibited areas with placards, blockades, verbal warnings, or red flags as appropriate.</p> <p>The Integrated Wildland Fire Management Plan would be updated to address training activities under Alternative A.</p> <p>Implementation of the measures listed above would minimize the potential for significant adverse impacts on the military and the general public.</p>	<p>practices currently employed or proposed under Alternative A would be implemented. Consequently, significant impacts are not expected to occur.</p>	
Air Quality	<p>No changes will occur to aircraft operations in the affected area under Alternative A of this action. Thus, no analysis was performed on the air quality effects of aircraft operations in the region.</p> <p>Alternative A for the RLOD would result in an increase in GBU-32 expenditures in R-2202, which would result in an increase in criteria pollutant and HAP emissions. The low level of criteria pollutant emissions that would result provides a good indication that the HAP emissions would be minimal.</p> <p>Increases in criteria pollutant emissions from Alternative A would</p>	<p>Same as Alternative A.</p>	<p>Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at R-2202 and R-2211. Therefore, the No Action Alternative would not result in any new air quality changes from existing conditions.</p>

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>not exceed applicable PSD significance thresholds of 250 tons per year. Therefore, the criteria pollutant emissions would result in less-than-significant air quality impacts.</p> <p>Impacts on air quality-related values at Denali National Park would be expected to be negligible.</p>		
Physical Resources	<p>The proposed additional use of ordnance represents a fraction of total yearly munitions use in the Oklahoma Impact Area, such that no adverse soil erosion impacts would occur.</p> <p>The proposed new targets in TAs 544 and 533 would be classified as temporary impact areas. Creation of new targets could result in short- and long-term soil erosion, as well as degradation of permafrost, including thermokarst features; therefore, there is potential for significant adverse impacts to occur without mitigations to avoid or reduce impacts, or the addition of BMPs and SOPs for these specific areas.</p>	<p>Impacts would be similar to those described for Alternative A.</p>	<p>Under the No Action Alternative, there would be no change to current activities at Blair Lakes Impact Area or the Oklahoma Impact Area and conditions would be the same as current existing conditions.</p>
Water Resources	<p>Impacts would be limited to the existing target arrays that currently undergo live-fire practice in the Oklahoma Impact Area.</p> <p>Water quality could be impacted by the metals and explosive fillers used in the ordnance. Iron, manganese, copper, molybdenum, lead, nickel and zinc are found in shell and various projectile</p>	<p>Impacts would be similar to those described for Alternative A, including the addition of the Blair Lakes Impact Area which is designated as a nondudded range where only inert ordnance would be used.</p>	<p>There would be no change to water quality in association with munitions use under current existing conditions, and no additional changes would occur in association with munitions use.</p>

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>components of the GBU-32 and SDBs.</p> <p>The increase in ordnance use is not expected to raise levels of metal concentrations to levels of concern; therefore, water quality impacts from metals deposited in the environment by exploded ordnance would be potentially adverse but not significant.</p> <p>The potential for net loss in wetland acreage would be minimal and potential impacts to wetlands would be adverse but not significant.</p> <p>Impacts on surface water and groundwater downstream of the proposed target arrays for inert ordnance delivery in TAs 533 and 544 would be minimal and not significant.</p> <p>The inert ordnance would not create significant craters; therefore impacts to wetlands would be minimal and not significant.</p>		
Hazardous Materials and Waste	<p>No significant adverse general hazardous materials-related operational impacts would occur in association with this alternative, as current and future Army regulations and practices would be undertaken to meet compliance requirements.</p> <p>Low levels of zinc, copper, lead, and antimony were detected within impact areas and target berms where munitions were used. The metal concentrations were above the background but no samples in DTA had values approaching levels of</p>	<p>Impacts would be similar to those described for Alternative A, including the addition of the Blair Lakes Impact Area which is designated as a nondudded range where only inert ordnance would be used.</p>	<p>Under the No Action Alternative, there would be no expansion of the footprint, associated WDZ, and hazard areas for ordnance delivery or the use of ordnance requiring an expanded footprint. Therefore, no change or additional impacts to existing conditions would occur for hazardous materials and waste.</p>

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>concern (USACE 2004-1).</p> <p>The Oklahoma Impact Area would be managed in accordance with current Federal, State of Alaska, Air Force, and Army regulations for the management, safe handling, and disposal of hazardous waste and materials associated with live and inert ordnance and UXO, as the result of aerial bombing exercises at each impact area. Therefore, Alternative A would result in the potential for adverse but not significant impacts.</p> <p>The proposed new targets in TAs 544 and 533 would be classified as temporary impact areas. There is no potential for adverse munitions-related hazardous materials impacts, as only inert ordnance delivery would be conducted.</p>		
Biological Resources	<p>The overflight and weapons release activities allowed by the proposed airspace modifications would not have substantial impacts on vegetation or wildlife.</p> <p>Under Alternative A, which includes the proposed establishment of new target areas outside the existing impact areas as part of the north-south ordnance delivery run-in headings, some potential exists for biological impacts at these new target sites. The target sites would be approximately 1 to 2 acres in extent and would be located within existing ordnance impact areas in DTA and TFTA. For</p>	Same as Alternative A.	No changes to existing biological resource conditions are expected from implementation of the No Action Alternative.

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>north-south run-in headings, however, targets would be located within DTA-West, but outside of existing ordnance impact areas. Only inert ordnance would be used at these targets. The siting and environmental review process would employ siting criteria to minimize impacts on wildlife and vegetation.</p>		
<p>Cultural Resources</p>	<p>Compliance with all requirements for Tribal consultation has been completed. No significant impacts are anticipated to cultural resources, traditional resources, or Alaska Native activities from the expansion of R-2202.</p> <p>The establishment of new target areas in TAs 533 and 544 is not anticipated to have impacts on cultural resources, as archaeological survey of the areas located no archaeological resources.</p> <p>In compliance with Section 106 of the NHPA, ALCOM, on behalf of the Air Force, completed consultation with the Alaska SHPO and determined that no historic properties will be affected by implementation of the proposed action.</p>	<p>No significant impacts are anticipated to cultural resources, traditional resources, or Alaska Native activities from the creation of a new restricted area linking R-2211 and R-2202 and its training use.</p> <p>The existing target array in the Oklahoma and the Blair Lakes Impact Areas would be used under Alternative B, and no significant impacts on cultural resources are anticipated.</p>	<p>Under the No Action Alternative there would be no expansion of the footprint, associated WDZ, and hazard areas for ordnance delivery or the use of ordnance requiring an expanded footprint. Existing use of the restricted areas would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.</p>
<p>Land Use</p>	<p>An increase of about 550 acres would be required for the proposed R-2202 restricted area expansion would affect Alaska State land only.</p> <p>Impulse noise levels of 62 dB CDNL would remain within the boundary of the existing Oklahoma Impact Area on</p>	<p>Impacts on land use, public access, and recreation would be similar under Alternative B as those described for Alternative A.</p> <p>An increase of about 42,420 acres would be required for the proposed restricted area expansion that would</p>	<p>Under the No Action Alternative, no expansion of SDZs or hazardous areas would result. There would be no change in munitions use or access to military or non-military areas. Therefore, no changes or additional impacts to existing land use, access or recreation conditions would occur.</p>

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>DTA-West. These noise levels are compatible with military training uses on military land.</p> <p>Areas exposed to peak noise levels exceeding 115 dB PK 15(met) extend beyond military land to the northeast of DTA-West. However, peak noise levels of 115 dB PK 15(met) already affect this area on a regular basis, and the change is relatively minor (less than 4 percent increase in non-military land), resulting in no adverse impact.</p> <p>Only minor impacts on non-military uses other than recreation on DTA-West would result.</p> <p>No public use would be permitted within WDZs when mission activities occur. Under Alternative A this would include about 163,630 acres of non-military land underlying the extended R-2202 airspace beyond the boundary of military land.</p> <p>Restricted access may cause an adverse impact on existing leases, permits, and claims on State land, limited in extent to the few entities that hold these property interests.</p> <p>A Range Safety and Management Plan detailing access control measures and roles and responsibilities would be prepared by the Air Force for ADNR approval following the State Special Use Designation for the R-2202 expansion.</p>	<p>link R-2202 and R-2211 to include the addition of the Blair Lakes Impact Area.</p> <p>Reduced access to land under the WDZ during aerial ordnance delivery exercises would result in a significant adverse impact to surface access in the local area.</p> <p>Overall, RLOD Alternative B would have potentially significant adverse impacts on land use and real estate interests, public access, and recreation in the directly and indirectly affected areas. Selective mitigations could reduce these impacts to less than significant but would require more consultation and coordination with ADNR and their Special Use Designation application and public review process for public access control and limitation.</p>	

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	Overall, implementation of RLOD Alternative A would have potentially significant adverse impacts on land use, recreation, and access on State lands, but coordination with ADNR and selected mitigations could reduce these to moderate levels.		
Infrastructure & Transportation	No adverse impacts to water, sewer or natural gas or transmission lines are anticipated. Although primary access arteries would not be adversely impacted, and rail access would see a net positive impact, transportation access would continue to remain an issue within the DTA and TFTA.	Under Alternative B, impacts discussed are identical to those presented under Alternative A, with the exception that the proposed 20-year vision for USARAK calls for improved access into TFTA (USARAK 2009-1).	No changes to existing infrastructure or transportation system conditions would occur under the No Action Alternative.
Socioeconomics	Existing commercial and residential uses in the area include: mining operations, recreation, subsistence, and aviation. Any access restrictions that would interrupt participation in these activities could result in additional costs from delays or rerouting, which, based on concerns expressed during the public scoping period and draft EIS public review, are anticipated to be significant without the implementation of mitigation measures. These would include such measures as notifying the public of the time and dates of ground access restrictions in advance and restricting military training during the most popular months (e.g., September) for recreation and subsistence harvesting, could lessen the likelihood of potential economic impacts.	Similar to Alternative A, potential economic impacts would be anticipated from a restriction in commercial and private access under Alternative B. Under Alternative B, the expanded restricted area would be significantly larger (e.g., 550 acres for Alternative A versus 42,420 acres for Alternative B) and thus, is anticipated to result in greater impacts than under Alternative A.	Under the No Action Alternative, there would be no expansion of the footprint, associated WDZ, and hazard areas for ordnance delivery, and no use of such ordnance as to require an expanded footprint. Therefore, no changes or additional impacts to existing socioeconomic resource conditions would occur under this alternative.

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
Subsistence	<p>The RLOD proposed action would restrict ground access to areas currently available for subsistence harvesting by rural Alaska residents under Federal regulations.</p> <p>Potential impacts on civil aviation and airports in the vicinity of the proposed RLOD are a possibility.</p> <p>With measures adopted to avoid or reduce potential impacts from restricted ground access or restricted airspace, significant adverse impacts to subsistence resources as defined by the ANILCA would not occur.</p>	<p>Under Alternative B, the expanded restricted area would be significantly larger (e.g., 550 acres for Alternative A versus 42,420 acres for Alternative B) and thus, are anticipated to result in greater impacts than under Alternative A.</p> <p>With measures adopted to avoid or reduce potential impacts from restricted ground access or restricted airspace, significant adverse impacts to subsistence resources as defined by the ANILCA would not occur.</p>	<p>Under the No Action Alternative, no additional airspace or expansion of SDZs is proposed. Individuals participating in subsistence in the nearby communities of Healy Lake, Dot Lake, and Dry Creek would be able to access the areas in order to harvest subsistence resources as it is currently practiced.</p>
Environmental Justice	<p>Significant land use or socioeconomic impacts would not create disproportionately high and adverse environmental or health effects on minority and low-income populations or children.</p>	<p>Same as Alternative A.</p>	<p>There would be no additional disproportionately high and adverse environmental and health effects from existing conditions on minority and low-income populations or children from the No Action Alternative, because restricted airspace would remain as currently configured and no additional airspace or expansion of SDZs or other hazard zones is proposed.</p>
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> • State Land/Leasehold Avoidance (Land Use-Management, Access, Recreation; Socioeconomics) Comply with ADNR comments to avoid leasehold properties in the north and south corners of the proposed restricted area by adjusting the borders of the Alternative A airspace. • ADNR Compliance Items (Safety-Ground; Land Use-Management) Air Force will provide support to ADNR throughout the Special Use Designation process. The Air Force will develop a CONOPS and an Access and Safety Plan for the exclusive use of State land to support RLOD. The Special Use Designation process will identify areas and dates of closure and will have to indicate which activities are affected. The Access Plan will provide the maximum public use to the ground evacuation areas, closing such areas for the minimum period of time necessary to conduct such operations. The Access Plan (updated annually) will identify areas and dates of closure and will indicate which activities are affected. It will describe roles and responsibilities for securing the area, ensuring it is evacuated, publishing and posting 			

Table 1-13. Summary of Impacts for Realistic Live Ordnance Delivery (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>closure notices, signs, and other media to advertise and alert public of the hazards, times, and locations.</p> <ul style="list-style-type: none"> Continued compliance with Army regulations on R-2202 (Physical Resources; Water Resources) <p>All applicable conservation, monitoring, and management procedures currently followed by USAG-FWA in the management of R-2202 will be applicable to the proposed action, including measures for the protection of soils and permafrost, including but not limited to, the Fort Wainwright INRMP and SWPPP and the monitoring guidelines of the ITAM Sustainable Range Awareness.</p> 		

Key: ADNR=Alaska Department of Natural Resources; ALCOM=Alaskan Command; ANILCA=Alaska National Interest Lands Conservation Act; BMPs=best management practice; CDNL=C-weighted day-night average sound level; CONOPS=Concept of Operations; dB=decibel; dB PK 15(met)=single-event peak level exceeded by 15 percent of events; DoD=U.S. Department of Defense; DTA=Donnelly Training Area; GBU=Guided Bomb Unit; HAP=hazardous air pollutant; INRMP=Integrated Natural Resources Management Plan; ITAM=Integrated Training Area Management; MOA=Military Operations Area; NHPA=National Historic Preservation Act; NM=nautical mile; PSD=prevention of significant deterioration; RLOD=Realistic Live Ordnance Delivery; ROD=Record of Decision; SDB=Small Diameter Bomb; SDZ=surface danger zone; SHPO=State Historic Preservation Officer; SOPs=standard operating procedures; SUA=Special Use Airspace; SUAIS=Special Use Airspace Information Service; SWPPP=Storm Water Pollution Prevention Plan; TA=Training Area; TFTA=Tanana Flats Training Area; USACE =U.S. Army Corps of Engineers; USAG-FWA=U.S. Army Garrison Fort Wainwright, Alaska; UXO=unexploded ordnance; VFR=Visual Flight Rules; WDZ=weapon danger zone.

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
Airspace Management and Use	<p>The military airspace for this proposal would be changed from a CFA to a restricted area.</p> <p>Aviation activities would increase slightly in the BAX restricted area above current levels, as it is estimated that approximately 70 percent of the USARAK helicopter operations currently conducted in R-2202 would be performed in the BAX restricted area. Air Force aircraft conduct a limited number of CAS missions throughout the year for Army ground-based activities in the BAX CFA and it is anticipated that such operations would occur in the future with establishment of a restricted area.</p> <p>For federal airways, this proposal may cause flight delays or require the FAA to route IFR air traffic around this active airspace.</p> <p>For jet/RNAV routes, air traffic operating along</p>	<p>As discussed for Alternative A, it is estimated that only the low altitudes (below 6,000 feet MSL) would be needed approximately 60 percent of the time with all three layers being used the other 40 percent.</p> <p>The potential impacts to federal airways, jet/RNAV routes, VFR air traffic, and local airports and airfields would be the similar to Alternative A.</p> <p>The existing flight safety procedures followed by the Army and Air Force for current flight training activities within this airspace would continue, as appropriate, to serve as the standard for minimizing impacts on other military and civil aviation airspace uses in the affected environment.</p> <p>Specific impacts or limitations the preferred</p>	<p>The BAX CFA would continue to be used for current USARAK activities while allowing nonparticipating aircraft access through the existing active CFA in the BAX area.</p>

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>J167 above the higher altitude sector (FL180–220) of this proposed restricted area would not be affected by this proposal.</p> <p>This proposal to establish restricted airspace in an area that currently permits VFR air traffic access through the existing CFA may have moderate to significant impacts on the VFR aviation community without the implementation of appropriate mitigations, regarding VFR accessibility in this area.</p> <p>The Delta Junction public airport and the All West, Rocking T, Remington, and Wingsong Estates private airfields are located within 10-15 miles of the proposed restricted area. There would be no direct impacts on these airfields, except for the restrictions discussed for VFR air traffic operating between these locations and destinations south and east of this proposed restricted airspace.</p>	<p>airspace proposal may have on IFR and VFR air traffic would be examined in the FAA aeronautical study with subsequent consultations with USARAK and civil aviation concerns on those operational mitigations that may be needed to help minimize impacts.</p>	
Noise	<p>Noise levels exceeding 62 dB CDNL or 130 dB PK 15(met) would not extend beyond range boundaries.</p> <p>Aircraft operations in the BAX area may increase relative to baseline operations tempo, but time averaged noise levels would not be expected to exceed 65 dB L_{dnmr}. Supersonic flying operations would not be permitted in the BAX Restricted Area airspace.</p> <p>Noise impacts would not exceed the significance thresholds established for this action.</p>	<p>Same as Alternative A.</p>	<p>Under the No Action Alternative, no changes to munitions usage or aircraft activity would occur. Noise levels would remain as they are under current existing conditions.</p>

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
Flight Safety	<p>The majority of the flight activities to be conducted in this airspace would be USARAK helicopters operating to/from and within this proposed restricted area.</p> <p>The potential for aircraft mishaps, near misses/midair collisions, bird-aircraft strikes, and other flight safety risks would be minimal.</p> <p>Nonparticipating aircraft would not be permitted in this restricted airspace when active.</p> <p>Measures currently used by USARAK to maintain safe operating distances from ground obstacles and other military and civil aircraft would continue to be used as a standard for ensuring flight safety is maintained for all concerned.</p> <p>The active status of this restricted area would be available through the SUAIS and other available advisory services.</p>	Same as Alternative A.	The No Action Alternative would not result in any changes to the existing CFA airspace environment, flight conditions, and safety programs currently associated with this airspace use.
Ground Safety	Significant impacts associated with range safety and control, UXO and munitions safety, public access control, or fire and emergency response for this alternative are not expected to occur.	Same as Alternative A.	No change in ground operations from existing conditions would occur under the No Action Alternative.
Air Quality	<p>The BAX area is located within the DTA, which is located in the Denali Borough and the Southeast Fairbanks Census Area, which are both in attainment of all NAAQS.</p> <p>The area proposed for the addition of the BAX airspace is adjacent to the DTA in Southeast Fairbanks Census Area and which is in attainment of all NAAQS.</p> <p>This alternative would not have any negative impacts on air quality or visibility in nearby Denali National Park.</p>	Same as Alternative A.	Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations undertaken in the BAX area.
Physical	Given that the proposed action involves minimal	Same as Alternative A.	No change to existing ground

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
Resources	to no disturbance of new or additional land surface, no adverse impacts on physical resources within the study area of this proposed action are expected to occur.		operations would occur under the No Action Alternative.
Water Resources	<p>Four new firing points and thirteen new target points would be added within the restricted area as part of this proposal.</p> <p>Inert ordnance, without high explosives, would be used at the training areas. Therefore explosive residues would not create adverse impacts at the target points.</p> <p>The compound 2,4-DNT is a component of some munitions used for training in this area. It is a carcinogenic compound and potentially can contaminate groundwater. The State of Alaska clean up levels are 0.005 parts per million for 2,4-DNT to protect groundwater (Walsh et al. 2004). Therefore, over time 2,4-DNT concentrations could accumulate at the firing points and concentrations could potentially exceed soil clean-up levels. Therefore, there is a potential for adverse impacts to groundwater quality. With mitigation and management actions, the adverse impacts would be reduced to not significant.</p>	Same as Alternative A.	Under the No Action Alternative the munitions usage at the existing target arrays and vehicle maneuvering would be the same as existing condition as described in the NEPA analysis in 2006 (USARAK 2006-1) and no additional impacts would occur.
Hazardous Materials and Waste	<p>The ground-disturbing impacts of munitions usage at the existing target arrays and areas of vehicle ground maneuvering were permitted and subject to NEPA analysis in 2006, in the <i>Final Environmental Impact Statement for the Construction and Operation of a Battle Area Complex and a Combined Arms Collective Training Facility within U.S. Army Training Lands in Alaska</i> (USARAK 2006-1).</p> <p>Therefore, no adverse impacts would occur related to hazardous materials and waste.</p>	Same as Alternative A.	Under the No Action Alternative, there would be no expansion of the restricted area over the BAX in DTA-East. Therefore, no additional hazardous material-related impacts would occur.

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
Biological Resources	<p>The vegetation classes present in DTA-East project area are widespread across the project region and are not unique or considered sensitive communities, and are not associated with endangered or threatened species. Therefore, no significant adverse effects to vegetation communities are expected.</p> <p>Because a variety of training already occurs within the BAX project area and a variety of wildlife species occur there, the resident and migratory species are exposed to, and likely habituated to, the types of disturbances that result from these types of activities. Wildlife habitats present within the project area are not associated with sensitive, endangered, or threatened species and are generally widely available within the project region.</p> <p>Changes in the ordnance and aircraft use in the BAX project area may have adverse but not significant impacts to local vegetation and wildlife. Impacts would be further reduced given implementation of proposed and ongoing mitigation such as Special Interest Management Areas, maintaining dialogue with BLM and ADNR to adjust restrictions, and impact avoidance measures.</p>	Same as Alternative A.	The current amount of ground disturbance (from training, vehicles and live fire) would be expected to continue, and wildlife using the area would be expected to remain active in occupied habitats. Localized vegetation impacts from training would continue.
Cultural Resources	Although 153 archaeological sites are located under the training airspace, no significant impacts are anticipated to cultural resources or Alaska Native tribes or other Tribal entities from the airspace reclassification and its training use. Flying operations are not conducted at a frequency sufficient to result in time-averaged noise levels exceeding 65 dB DNL. Noise levels generated by munitions firing exceeding 62 dB CDNL would not extend beyond range	Same as Alternative A.	Under the No Action Alternative there would be no expansion of the restricted area over the BAX in DTA-East and no expansion of the BAX SDZ footprint. Existing use of the restricted areas would continue under this alternative and resources would continue to be managed in compliance with Federal law and

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>boundaries.</p> <p>Adverse effects are likely for the 14 known archaeological sites within the expanded footprint of the BAX, as well as any sites found during surveys of the previously unsurveyed areas bounded by the expanded BAX SDZ footprint. In compliance with Section 106 of the NHPA, the Army has completed consultation with the Alaska SHPO and executed a Programmatic Agreement.</p> <p>The SHPO has concurred with the finding of no adverse effect, provided that a monitoring and data recovery program is implemented. Under the terms of the Programmatic Agreement, consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities will continue for the duration of the Programmatic Agreement.</p> <p>No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed new restricted area and ALCOM has complied with all requirements for Tribal consultation.</p>		<p>DoD policy and regulations.</p>
Land Use	<p>The primary land use on DTA-East is military training, and this would not change under the BAX proposal.</p> <p>Public uses taking place on DTA-East including: recreation, personal use and subsistence, hunting, gathering, trapping, and some timber harvesting would continue, but available time for access would become more limited.</p> <p>This proposal would also prevent use of portions of the Richardson Highway-Gerstle River Trail, the 33-Mile Loop Road, and the 12-Mile Crossing. Elimination of these access</p>	<p>This alternative would affect a larger portion of DTA-East, including TAs 501, 502, 503, 504, 505, 506, 507, 508, 510, 511, 512, 513, 514, and 515. The Richardson-Gerstle and 33-Mile Loop trails would be affected, as well as the trail network in TAs 512, 508, and 511.</p> <p>Other noted impacts are the same as Alternative A.</p>	<p>There would be no changes to the current project area under the No Action Alternative. Therefore, no additional impacts on land use, public access, or recreation would occur.</p>

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>points would reduce the amount of recreation area available to the public within DTA-East.</p> <p>Noise contours show a slight increase in sound exposure and slight expansion of the area exposed to 62 dB CDNL and above. Noise exposure on areas outside the installation would remain well below 62 dB L_{dnmr}. No areas would experience incompatible averaged impulsive noise levels.</p> <p>Under this proposal, civilian ground and air access would not be permitted within the project area when the BAX and restricted area are active with military training and exercises taking place. This would occur approximately between three and five days per week, depending on annual Army training schedules for training in this area. This would result in an adverse impact on the accessibility of trails and roads and to the use of areas served by those routes.</p> <p>Overall, both noise and access impacts of this proposal would have an adverse but less than significant impact on local recreation opportunities in the Delta Junction area. This impact is somewhat moderated considering a relatively small portion of local recreational activity uses in this area of DTA.</p>		
Infrastructure & Transportation	No Effect		

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
Socioeconomics	<p>Although there is no available data on the number of civilian general aviation flights that traverse the current BAX CFA, it is expected that the number of civilian flights traversing the area is low since there are no population centers in the BAX CFA. Potential impacts on civil aviation are not expected to adversely impact socioeconomic resources.</p> <p>Specific impacts or limitations this proposal may have on IFR and VFR air traffic would be examined in an FAA aeronautical study with subsequent consultation with USARAK and civil aviation concerns on those operational mitigations that may be needed to help minimize impacts. Civil general aviation contributes significantly to the local economy; mitigations identified in the FAA study that would minimize adverse impacts to civilian aviation could subsequently minimize adverse impacts to socioeconomic resources.</p> <p>Approximately 167 persons within the Southeast Fairbanks Census Area were identified under the proposed airspace. Noise levels exceeding 62 dB CDNL or 130 dB PK 15(met) would not extend beyond range boundaries into residential areas. Additionally, the area is currently exposed to low-level overflights and noise associated with military aircraft. These activities are not expected to adversely impact populations or socioeconomic resources.</p>	Same as Alternative A.	Under the No Action Alternative, socioeconomic resources would remain as described under current existing conditions, and no additional impacts would occur.
Subsistence	The area beneath the proposed restricted airspace is in the vicinity of two major highways and access to subsistence activities would not be heavily dependent on aircraft access. Potential impacts on civil aviation are not expected to	Same as Alternative A.	Under the No Action Alternative, no restricted airspace would be established. Existing military activities would continue. Subsistence

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>adversely impact access to subsistence resources.</p> <p>The increase in military activities at the BAX may decrease the amount of time public access is permitted. The BAX area and the proposed restricted airspace would be active for a maximum of 238 days at all times of the year. For rural Alaska residents that regularly harvest subsistence resources within the public access areas of DTA (in which BAX is located), an increase in restrictions to public access could be an adverse impact. However, the nearby vicinity has large tracts of Federal land in which subsistence activities are permitted and do not have the same access restrictions as a military installation. No significant impacts to subsistence activities are expected as defined by ANILCA.</p>		<p>activities would remain as they are currently practiced.</p>
<p>Environmental Justice</p>	<p>Impacts such as airspace management, noise, land use, and socioeconomics would be less than significant or mitigated to this level.</p> <p>Impacts from this alternative would not create disproportionately high and adverse environmental or health effects on minority or low-income populations or children.</p>	<p>Same as Alternative A.</p>	<p>For the No Action Alternative, no restricted airspace and new target areas would be established and military activities would continue under existing conditions. There would be no additional disproportionately high and adverse environmental or health effects on minority and low-income populations or children.</p>
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> • FAA’s study (Airspace Management) Pending the FAA’s study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals. • Eagle and migratory birds (Biological Resources) 			

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>Maintain consultation with USFWS with regard to compliance with Bald and Golden Eagle Protection Act and MBTA. As required, conduct bald and golden eagle nest surveys in other areas where airspace modification would occur over previously unsurveyed areas. Coordinate the results with USFWS.</p> <ul style="list-style-type: none"> • Sensitive wildlife awareness training (Biological Resources) <p>Continue pilot and soldier education for awareness of sensitive wildlife species habitats and seasonal behaviors utilizing GIS mapping and discuss procedures to reduce disturbances and to increase safety by reducing potential for aircraft strikes.</p> <ul style="list-style-type: none"> • Monitor effects of military training on wildlife (Biological Resources) <p>Continue to monitor effects of military training including overflights on select wildlife species (especially herd animals, waterfowl, and raptors) and fisheries during critical seasons such as breeding, young-rearing, and migration. Use knowledge to develop and implement strategies to minimize disturbance to priority wildlife in existing and new SUAs and restricted airspace. This would help natural resources and range managers to coordinate training schedules that minimize impacts on wildlife populations.</p> <ul style="list-style-type: none"> • Continue study of noise effects on wildlife (Biological Resources) <p>Continue effort to conduct a detailed study to assess the impacts and effects of noise on wildlife, particularly key species such as caribou and bison, during critical life cycle seasons. Use information to include protection requirements within a noise management plan.</p> <ul style="list-style-type: none"> • NHPA compliance (Cultural Resources) <p>Mitigations for impacts to cultural resources are established through NHPA Section 106 consultation pursuant to 36 CFR 800. In compliance with Section 106 of the NHPA the Army has completed consultation with the Alaska SHPO and complied with all requirements for consultation with potentially affected Alaska Native Tribes, ANCSA corporations, and Tribal government entities to identify historic properties that may be affected, including TCPs, and develop management actions and mitigation measures to resolve any adverse effects, if required. It has been determined that significant adverse impacts to cultural resources and Alaska Native Tribes, ANSCA corporations, and Tribal government entities would not occur by the implementation of the BAX Restricted Area proposal.</p> <p>Mitigation measures include the amendment of the existing BAX Surface Danger Zone Programmatic Agreement to include the known and as yet undiscovered archaeological sites in the expanded BAX SDZ footprint. Specific Programmatic Agreement requirements are to survey new areas of the amended BAX SDZ within a period of five years from the amended agreement (9/9/12); add any sites that are discovered to the BAX SDZ monitoring plan; produce an annual report to the Alaska SHPO; update the Archaeological Resource Protection Act tri-fold handout and develop a placard describing cultural resources on the BAX SDZ that will be presented in the form of, at a minimum, one poster displayed at Range Control, and one interpretive panel placard to be displayed at an information kiosk located at the BAX range; and develop a cultural resource awareness PowerPoint presentation to be given to Soldiers and contractors to increase knowledge of cultural resource concerns and responsible actions, and knowledge of Alaska Native communities. All of the above mentioned requirements are either completed or in progress. Annual monitoring of archaeological sites within the BAX SDZ began in August of 2009 and will continue for 10 years from this date.</p>		

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>In accordance with AR 200-1, all NHPA Section 106 consultation has been completed. In the event that previously unrecorded or unevaluated cultural resources are encountered, the Army would manage these resources in accordance with the NHPA and other Federal and State laws, Air Force, and DoD regulations and instructions, and DoD American Indian and Alaska Native Policy.</p> <ul style="list-style-type: none"> • Munitions contamination issues (Hazardous Materials and Waste; Water Resources; Biological Resources) The Army may augment the effort for their existing program to identify possible munitions contamination at impact areas on DTA-East. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams. • USARTRAK (Land Use-Access) The Army will update information and maps available to the public on the USARTRAK website to identify changes in public access restrictions for the expanded Army training activities within USAG-FWA training areas. • Relationships with regulatory agencies (Biological Resources; Land Use-Management, Access, Recreation) The military will maintain an open dialogue with ADNR, BLM, ADFG, and USFWS to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the ROD for this EIS. • Trespass control (Safety-Ground; Land Use) The Army will expand enforcement to control trespass in DTA-East for the expanded operations. • Bird awareness programs (Safety-Flight) Maintain respective bird awareness programs to address potential bird and wildlife hazards that may exist. • Fire management (Safety-Ground) Continue fire management mitigations in accordance with current Army and USARAK regulations on the BAX. • Air traffic situational awareness (Airspace Management; Socioeconomics) Pursue manning and funding for any enhancements required to expand situational awareness for air traffic in and around training areas for general and military aviation. Complete an internal study to identify coverage gaps in new SUAs and restricted airspace. One possible alternative is the establishment of a U.S. Army Airspace Information Center. • Subsistence use consultation (Subsistence) Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into 		

Table 1-14. Summary of Impacts for Battle Area Complex Restricted Area (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA.</p>		

Key: 2,4-DNT=2,4 dinitrotoulene; ADFG=Alaska Department of Fish and Game; ADNDR=Alaska Department of Natural Resources; AFI=Air Force Instruction; ANCSA=Alaska Native Claims Settlement Act; ANILCA=Alaska National Interest Lands Conservation Act; BAX=Battle Area Complex; BLM=Bureau of Land Management; CAS=Close Air Support; CDNL=C-weighted day-night average sound level; CFA=Controlled Firing Area; dB=decibel; dB PK 15(met)=single-event peak level exceeded by 15 percent of events; DNL=day-night average sound level; DoD=U.S. Department of Defense; DTA=Donnelly Training Area; EIS=environmental impact statement; FAA=Federal Aviation Administration; FL=flight level; GIS=geographic information system; IFR=Instrument Flight Rules; L_{dnmr}=onset rate-adjusted day-night average sound level; MBTA=Migratory Bird Treaty Act; MSL=mean sea level; NAAQS=National Ambient Air Quality Standards; National Register=National Register of Historic Places; NEPA=National Environmental Policy Act; NHPA=National Historic Preservation Act; RNAV=Area Navigation; ROD=Record of Decision; SDZ=surface danger zone; SHPO=State Historic Preservation Officer; SUA=Special Use Airspace; SUAIS=Special Use Airspace Information Service; TCP=traditional cultural property; TFTA=Tanana Flats Training Area; USAG-FWA=U.S. Army Garrison Fort Wainwright, Alaska; USARAK=U.S. Army Alaska; USARTRAK=Army Recreational Tracking System; USFWS=U.S. Fish and Wildlife Service; UXO=unexploded ordnance; VFR=Visual Flight Rules; YTA=Yukon Training Area.

Table 1-15. Summary of Impacts for Expand Restricted Area R-2205

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
Airspace Management and Use	<p>The proposed use of the expanded R-2205 restricted area would provide increased restricted protective airspace over YTA.</p> <p>Multiple training activities may be scheduled and conducted within the different subareas on the same day, normally Monday – Friday, for an estimated total 300 days annually. The airspace may be scheduled up to 24 hours on any particular training day.</p> <p>It is not anticipated that the overall number of USARAK helicopter operations or Air Force sortie missions would increase significantly above current representative levels with the creation of this restricted airspace.</p> <p>The FAA has indicated that the R-2205 expansion in the areas surrounding Eielson AFB would have some adverse effects on the published arrival and departure procedures used to separate Eielson AFB aircraft from other air traffic in the area. It may also limit FAA options for routing VFR and IFR air traffic in</p>	<p>This alternative would maintain the existing R-2205 without any expanded airspace and would, therefore, result in no changes to existing conditions to the current military and civil aviation uses of this airspace.</p>

Table 1-15. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>the Fairbanks, North Pole, and Fort Wainwright areas. The manner in which adverse impacts would be avoided or reduced would be stipulated in an agreement examined in the FAA aeronautical study of this proposal.</p> <p>Several federal airways are located within this region with V444/T232 being in closest proximity but sufficiently clear of this proposed airspace so as not to be impacted by this expansion.</p> <p>Jet/RNAV Routes J502-515 transits southwest of the proposed airspace and is sufficiently distant from the boundary so as not to be impacted by this proposal.</p> <p>The Birch, Alaska Highway, and other flyways commonly used by VFR air traffic are sufficiently distant from the proposed airspace areas so as not to have any impacts on this traffic when these airspace subdivisions are active.</p> <p>No public airports or private charted airfields are within the area of the proposed R-2205 expansion although the Fairbanks and Bradley airports and several charted private airfields are within the general region of this proposed airspace.</p>	
Noise	<p>The total number and types of munitions fired into the Stuart Creek Impact Area would not be expected to change. However, the expansion of R-2205 would allow a much larger range of weapons types to be used at DMPTR.</p> <p>Noise levels exceeding 62 dB CDNL do not extend beyond the boundaries of land currently withdrawn for military use. The area affected by peak noise levels (exceeding 115 dB PK 15(met)) would increase slightly under the proposed action. However, the non-military land area exposed to this noise level would not change in extent under the proposed action. Noise impacts would not exceed the significance thresholds established for this action.</p>	<p>Under the No Action Alternative, R-2205 would not be expanded and no changes to existing training operations would occur.</p>
Flight Safety	<p>The area covered by the R-2205 western expansion has little or no populace, therefore, the potential for any aircraft mishap in this area is minimal.</p>	<p>Flight safety risks and the continuing safety programs in effect to address these risks would remain the same as currently exists.</p>

Table 1-15. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>The potential for a near miss/midair collision would be low to moderate for this proposed action since nonparticipating aircraft do not normally operate in this area and would be further restricted from entering this airspace when active.</p> <p>The potential for any bird/wildlife-aircraft strikes during low-altitude flights in this affected area would be low. There are measures already in place for maintaining awareness of any heightened bird activities and flight safety risks.</p>	
Ground Safety	<p>The Army has existing plans, policies, and procedures in place to avoid or reduce adverse significant impacts, regarding range safety and control, UXO and munitions safety, public access control, and fire and emergency response. Consequently, adverse impacts are not expected to occur.</p>	<p>No change in existing ground operations would occur under the No Action Alternative.</p>
Air Quality	<p>The area proposed for the expansion of the R-2205 airspace is in attainment of all NAAQS, and the proposed action would not increase aircraft operations or munitions usage. As there will be no net increase in criteria pollutant or HAP emissions, the operation of R-2205 under the proposed action would result in less-than-significant to no air quality impacts.</p> <p>Since the R-2205 action would not result in an increase in emissions, it would not result in any impacts on Denali National Park.</p>	<p>Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at R-2205.</p>
Physical Resources	No Effect	
Water Resources	No Effect	
Hazardous Materials and Waste	<p>The proposed action would utilize existing on-the-ground range structure and would involve no new construction in the realigned boundary area.</p> <p>In addition, other than surficial ground disturbance associated with ground maneuvers of vehicles, no excavations or ground disturbance would occur.</p> <p>There are no known contaminated sites located in the realigned boundary area. Therefore, no adverse impacts would occur as a result of potentially encountering known or unknown contaminated soil.</p>	<p>Under the No Action Alternative, there would be no realignment of the outer restricted area boundary. Therefore, additional hazardous material-related impacts would not occur.</p>

Table 1-15. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>As part of the proposed action, vehicles would be used during training. There is the potential for accidental chemical release from refueling or maintenance activities during training activities. The Army would manage hazardous materials/waste in accordance with Army Regulation 200-1, <i>Environmental Protection and Enhancement</i> (Army 2007-1), which provides guidance on oil and hazardous substance spills, hazardous materials management, and the Installation Restoration Program (IRP).</p> <p>The risk of petrochemical spills is expected to increase under the proposed action due to the need to transport fuel and perform refueling operations in the field to support training requirements. However, due to the infrequency of such activities, combined with existing procedures and controls, the proposed action would result in the potential for adverse, but not significant impacts.</p> <p>There is the potential for munitions related hazardous materials impacts in association with this alternative. Munitions fragments and residues would be generated as a result of live-fire action. However, training would use existing impact areas for the discharge of ordnance from aircraft within the proposed restricted area, such that no adverse munitions-related chemical release impacts to the environment would occur.</p>	
Biological Resources	<p>As proposed for BAX, the restricted area expansion of the existing R-2205 would primarily differ from current activities by enabling additional air-to-ground ordnance use in the expansion areas. These activities may have localized effects to the vegetation and wildlife present within YTA.</p> <p>No new impact areas would be established and no substantially different impact types would be introduced into the R-2205 restricted areas as a result of this proposal. As for ongoing training, effects to biological resources would be localized and vegetation communities as a whole would not be expected to be adversely affected. The vegetation classes present in YTA are not unique or considered sensitive communities, but are</p>	<p>The current amount of localized ground disturbance (from training, vehicles, and live fire) would be expected to continue and wildlife using the area would be expected to remain active in occupied habitats. Localized vegetation impacts from existing training activities would continue.</p>

Table 1-15. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>widespread across the project region.</p> <p>Wildlife habitats present within the project area are not associated with sensitive, endangered, or threatened species, and are generally widely available within the project region. Wildlife species in the area are generally exposed to and may be habituated to military activities. The proposed expanded restricted areas in YTA do not contain important wildlife breeding, wintering, or nesting habitats. No significant effects to vegetation communities or wildlife populations are expected.</p>	
Cultural Resources	<p>No impacts are anticipated to cultural resources from the expansion of R-2205 and its training use. The annual average noise levels under the proposed airspace reclassification are not expected to noticeably change as a result of increased training activities, and would not be sufficient to damage any archaeological or historic architectural sites.</p> <p>In compliance with Section 106 of the NHPA, the Army has completed consultation with the Alaska SHPO, who concurred with the Army's determination of no adverse effect to historic properties.</p> <p>All compliance requirements for consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities have been completed.</p> <p>No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed expansion of R-2205.</p>	<p>Under the No Action Alternative there would be no expansion of R-2205 in YTA. Existing use of the restricted area would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.</p>
Land Use	<p>The proposal involves the use of airspace and weapons firing at existing training areas, impact areas, and ranges. There would be no new areas exposed to surface disturbance; therefore, no impact to existing infrastructure, leases, rights-of way, or permits on military land on military or non-military land would result.</p> <p>Under the proposal, the area exposed to 62 dB CDNL and greater would remain within military land, with a slight increase within Eielson AFB (from 126 to 230 acres). This</p>	<p>There would be no changes to the current project area under the No Action Alternative. Therefore, existing land use, public access, and recreation would remain under existing conditions.</p>

Table 1-15. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>would not extend as far as the housing areas on base. As such, no areas would experience incompatible impulse noise levels from airspace use, ground training, or ordnance use.</p> <p>Currently, the only public uses taking place on YTA are recreational, including personal use and subsistence hunting, gathering and trapping, and some timber harvesting and wood cutting. With increased use of YTA for hazardous operations (up to 300 days per year), time available for these public uses and range management tasks, including vegetation management, restorative projects, research, monitoring, and surveys, would be very limited. Coordinated scheduling could minimize conflicts in arranging adequate time on range for management functions.</p> <p>Civilian ground and air access is currently permitted within the proposal area with the exception of several off-limits areas, including the DMPTR and the Stuart Creek Impact Area. Under this proposal, civilian ground and air access would be restricted during activation of R-2205.</p> <p>No charted airports are located within the project area on military lands. Therefore, no direct impacts on air access would occur. The restricted airspace would continue to affect public air access across R-2205 within the project area during activation. An increase in training activities would lead to more frequent airspace closures for military purposes. Indirect impacts on temporal and spatial availability of airspace to public aviation are expected to be minor.</p> <p>The proposed training activities for DMPTR and YTA would greatly reduce the amount of time that training areas are available for public use and recreation. Even though training schedules are available on USARTRAK and the public can plan around them, substantially reduced access may have a minor adverse but not significant impact on recreation on YTA due to its relatively low use.</p>	
Infrastructure & Transportation	No effect	

Table 1-15. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
Socioeconomics	<p>The population within the defined census block of the proposed restricted airspace is 166 persons. There would be no persons exposed to noise levels exceeding 62 dB CDNL, since these levels do not extend beyond the boundaries of DoD-owned land.</p> <p>Potential civil aviation impacts associated with this action may include slightly increased flight distances and increased flight time in order to avoid the restricted airspace. To the extent that they would occur, these potential aviation impacts would result in economic impacts due to additional operating costs (primarily related to increased fuel use) associated with avoiding restricted airspace, and the costs of any expended efforts in tracking the airspace status through available advisory services.</p> <p>The economic impacts of any military or other civil aviation aircraft being delayed or diverted to any extent around the proposed airspace when active cannot be quantified due to the many factors to be considered in estimating such impacts.</p>	<p>Under the No Action Alternative, the creation of restricted area for R-2205 in YTA would not be established and there would be no changes or additional impacts to socioeconomic resources from current existing conditions.</p>
Subsistence	<p>Because the land for this proposed action is within a Federal non-rural area and a State non-subsistence area, subsistence resources are not managed, and Alaska residents are not given priority to harvest resources within the area. Therefore, there would be no impacts on subsistence.</p>	<p>Same as the Proposed Action.</p>
Environmental Justice	<p>Other resources considered for environmental justice analysis (e.g., noise, land use, socioeconomics) would have less than significant impacts with mitigation measures referenced in those resource sections.</p> <p>Impacts from the proposed expansion of restricted area over R-2205 in YTA would not create disproportionately high and adverse environmental or health effects on minority or low-income populations or children.</p>	<p>Under the No Action Alternative, there would be no additional disproportionately high and adverse environmental or health effects on minority and low-income populations or children.</p>
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> • FAA’s study (Airspace Management) Pending the FAA’s study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the 		

Table 1-15. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<p>airspace proposals.</p> <ul style="list-style-type: none"> • Effects of military training on wildlife (Biological Resources) Continue to monitor effects of military training including overflights on select wildlife species (especially herd animals, waterfowl, and raptors) and fisheries during critical seasons such as breeding, young-rearing, and migration. Use knowledge to develop and implement strategies to minimize disturbance to priority wildlife in existing and new SUAs and restricted airspace. This would help natural resources and range managers to coordinate training schedules that minimize impacts on wildlife populations. • Sensitive wildlife awareness training (Biological Resources) Continue pilot and soldier education awareness of sensitive wildlife species habitats and seasonal behaviors utilizing GIS mapping and discuss procedures to reduce disturbances and to increase safety by reducing potential for aircraft strikes. • Continue noise effects study on wildlife (Biological Resources) Continue effort to conduct a detailed study to assess the impacts and effects of noise on wildlife, particularly key species such as caribou and bison, during critical life cycle seasons. Use information to include protection requirements within a noise management plan. • NHPA compliance (Cultural Resources) Mitigations for impacts to cultural resources are established through NHPA Section 106 consultation pursuant to 36 CFR 800. In compliance with Section 106 of the NHPA the Army has completed consultation with the Alaska SHPO and complied with all requirements for consultation with potentially affected Alaska Native Tribes, ANCSA corporations, and Tribal government entities to identify historic properties that may be affected, including TCPs, and develop management actions and mitigation measures to resolve any adverse effects, if required. It has been determined that significant adverse impacts to cultural resources and Alaska Native Tribes, ANCSA corporations, and Tribal government entities would not occur by the implementation of this proposal. In accordance with AR 200-1, all NHPA Section 106 consultation has been completed. In the event that previously unrecorded or unevaluated cultural resources are encountered, the Army would manage these resources in accordance with the NHPA and other Federal and state laws, Air Force, and DoD regulations and instructions, and DoD American Indian and Alaska Native Policy. • Munitions contamination issues (Hazardous Materials and Waste; Biological Resources) The Army may augment the effort for their existing program to identify possible munitions contamination at impact areas on YTA. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams. • Relationships with regulatory agencies (Biological Resources; Land Use) The military will maintain an open dialogue with ADNDR, BLM, ADFG, and USFWS to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the ROD for this EIS. • Trespass control (Safety-Ground; Land Use) The Army would expand enforcement to control trespass in YTA for the expanded R-2205 activities. 	

Table 1-15. Summary of Impacts for Expand Restricted Area R-2205 (Continued)

Resource Area	Proposed Action (Preferred Alternative)	No Action Alternative
	<ul style="list-style-type: none"> • Special use airspace safety (Safety-Flight) Continue efforts to comply with the respective Service formal flight safety programs, outlined in directives/regulations with supplements, that dictate those aircrew responsibilities and practices aimed at operating all manned and unmanned aircraft safely in existing modified and new SUAs. • Subsistence use consultation (Subsistence) Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA. 	

Key: ADFG=Alaska Department of Fish and Game; ADNR=Alaska Department of Natural Resources; AFB=Air Force Base; AFI=Air Force Instruction; ANCSA=Alaska Native Claims Settlement Act; BLM=Bureau of Land Management; CDNL=C-weighted day-night average sound level; CFR=Code of Federal Regulations; dB=decibel; dB PK 15(met)=single-event peak level exceeded by 15 percent of events; DMPTR=Digital Multi-Purpose Training Range; DoD=U.S. Department of Defense; EIS=environmental impact statement; FAA=Federal Aviation Administration; GIS=geographic information system; HAP=hazardous air pollutant; IFR=Instrument Flight Rules; NAAQS=National Ambient Air Quality Standards; NHPA=National Historic Preservation Act; RNAV=Area Navigation; ROD=Record of Decision; SHPO=State Historic Preservation Officer; SUA=Special Use Airspace; TCP=traditional cultural property; TFTA=Tanana Flats Training Area; USAG-FWA=U.S. Army Garrison Fort Wainwright, Alaska; USARAK=U.S. Army Alaska; USARTRAK=Army Recreational Tracking System; USFWS=U.S. Fish and Wildlife Service; UXO=unexploded ordnance; VFR=Visual Flight Rules; YTA=Yukon Training Area.

Table 1-16. Summary of Impacts for Night Joint Training

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
Airspace Management and Use	<p>Alternative A would extend the March and October MFE operations from 10:00 p.m. to midnight (12:00 a.m.) local time within the SUA typically used for these evening training missions, as well as the proposed new SUA.</p> <p>The MFE sortie-operations projected for the extended night hours should have minimal effects on civil aviation airspace uses.</p> <p>The later evening military flights during hours of darkness in which VFR aircraft would not normally operate should have minimal impacts on this aviation sector. VFR flights that may occur during later hours could obtain information on the active status of the MOAs and restricted areas being activated for</p>	<p>Alternative B would include both MFE and routine training operations being conducted during the extended night hours, but not normally on the same evenings.</p> <p>Routine training during extended night time hours would be considerably less than the number of MFE operations to be conducted during those later hours.</p> <p>The relatively small proportion of MFE or routine training sortie-operations that would occur during the extended night hours would have little impact on Federal airways, jet/RNAV routes, VFR air traffic, or public/private airfields.</p>	<p>The No Action Alternative would not involve any MOA operations beyond 10:00 p.m. and would not change existing airspace uses and ATC system capabilities.</p>

Table 1-16. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>missions and flight activities and plan their flight times/routes accordingly.</p> <p>This proposal would have minimal effects on the Fairbanks and Anchorage International airports and any other locations having flight activities during the later night hours.</p>		
Noise	<p>The shift in time of sortie-operations to after 10:00 p.m. would result in an increase of approximately 1 dB L_{dnmr} in all JPARC training airspace. Supersonic noise levels (CDNL) would also increase by about 1 dB beneath those airspace units that allow supersonic training.</p> <p>Noise impacts from night flights would not exceed the significance thresholds established for this action.</p> <p>Late-night munitions delivery is also a component of this proposal and would occur on ranges at which late-night munitions training already takes place. Noise impacts would not exceed significance thresholds established for this action component.</p>	<p>Same as Alternative A with the addition of routine training during all times of the year.</p>	<p>Under the No Action Alternative, operations in the MOA would continue to cease prior to 10:00 p.m. and noise levels would not change from existing conditions.</p>
Flight Safety	<p>This proposal would present minimal additional risk to flight safety while conducting the later night training operations. The reduced level of military operations and civil air traffic during later hours would reduce the potential for interactions between military and civil aircraft, thus minimizing the risk of any near-misses or midair collisions.</p> <p>The potential for any bird/wildlife aircraft strikes during later evening hours would always be a possibility, therefore, the measures currently in place for monitoring, reporting, and avoiding these hazards would continue to be followed by the Air Force for</p>	<p>Same as Alternative A with the addition of routine training during all times of the year.</p>	<p>The No Action Alternative would maintain nighttime flight operations within the timeframes and flight safety conditions that currently exist with those operations.</p>

Table 1-16. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	the proposed night operations.		
Ground Safety	This alternative does not include activities that would pose ground safety hazards, such as air-to-ground or live-fire ordnance training. Consequently, impacts on ground safety are not expected.	Same as Alternative A with the addition of routine training during all times of the year.	The No Action Alternative would maintain nighttime ground safety operations within the timeframes that currently exist with those operations.
Air Quality	<p>For each of the proposed action alternatives, the proposed NJT action would shift the times at which nighttime sorties are conducted and would not result in an increase in flight activities or a change in the location of these sorties.</p> <p>Since flights would be spaced out over a longer period of time during the night, it will result in additional dispersion of aircraft emissions over the region and lower localized impacts.</p> <p>An air quality analysis of the impacts from Alternatives A and B was not conducted for this proposed action, as there would not be an overall change in the aircraft training emissions or to air quality in the affected region from current baseline conditions due to this action.</p>	Same as Alternative A with the addition of routine training during all times of the year.	Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations.
Physical Resources	No Effect		
Water Resources	No Effect		
Hazardous Materials and Waste	<p>Contaminated sites are not applicable to this proposed action, as no ground activities would occur as part of this proposal.</p> <p>The expenditure of live ammunition or detonations has the potential to release hazardous chemicals or other elements, such as heavy metals, into the environment. However, the proposed training and exercises would use existing impact areas within R-2205 in YTA (Stuart Creek) and R-2202 in</p>	Same as Alternative A with the addition of routine training during all times of the year.	MOA hours would continue to be limited to 10:00 p.m.; therefore, impacts would be similar, but less, than those described for Alternative A.

Table 1-16. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>DTA-West (Oklahoma).</p> <p>These impact areas would be managed in accordance with current Federal, State of Alaska, Air Force, and Army regulations for the management, safe handling, and disposal of hazardous waste and materials associated with live and inert ordnance and UXO.</p>		
<p>Biological Resources</p>	<p>Because no infrastructure is needed, no ground effects are associated with the NJT proposed action; therefore, no impacts on vegetation would occur.</p> <p>The extended flight operations are proposed for March and October, actions would not be expected to coincide with the peak times of waterfowl migration (May and September) but would overlap more than do current operations.</p> <p>The greatest effect on waterfowl may be the increase in aircraft overflight at night roosting areas. However, with current avoidance restrictions in place, disturbance incidents are expected to be minimal.</p> <p>Bird-aircraft strike incidences have the potential to increase, but the potential effects of unavoidable bird-aircraft collisions on populations of waterfowl or other wildlife would be negligible and would not be measurable.</p> <p>Alternative A does not propose new threats to sensitive big game activities and would be expected to have little to no adverse effects to these species.</p> <p>Overall impacts to biological resources from Alternative A are expected to be adverse but not significant, and would be further reduced</p>	<p>Alternative B may present a somewhat higher potential for increased bird-aircraft strikes. This adverse impact would require more intensive planning among the BASH Team, pilots, and route planners to maintain safety.</p> <p>Otherwise impact potential would be the same as Alternative A with the addition of routine training during all times of the year.</p>	<p>Under the No Action Alternative, JPARC MOA hours would not be extended past 10:00 p.m.; therefore, wildlife resources would be expected to remain as under existing baseline conditions.</p>

Table 1-16. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	given implementation of mitigation and impact avoidance measures.		
Cultural Resources	<p>Compliance with all requirements for Tribal consultation has been completed. No impacts are anticipated to cultural resources, traditional resources, or Alaska Native activities from the proposed change in airspace operating hours and its training use.</p> <p>In compliance with Section 106 of the NHPA, ALCOM, on behalf of the Air Force, has completed consultation with the Alaska SHPO and determined that no historic properties will be affected by implementation of the proposed action.</p>	Same as Alternative A with the addition of routine training during all times of the year.	Under the No Action Alternative there would be no change in operating hours in JPARC. Existing use of the airspace would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.
Land Use	<p>This proposal would not result in impacts to land use, access and recreation.</p> <p>Average noise levels in affected MOAs would increase by approximately 1 dB. This change would result in imperceptible change in noise levels experienced on the ground currently, but these noise events could occasionally be loud enough to awaken or annoy a small percentage of persons. All existing flight avoidance procedures would continue.</p> <p>This proposal would result in minimal change in night noise under restricted airspace over military lands and would have no impact on recreation use.</p> <p>The night bombing component of this proposal would have minor impacts on land use and recreation.</p> <p>There would be no impacts to public access.</p>	Same as Alternative A with the addition of routine training during all times of the year.	For the No Action Alternative, there would be no change in night operations in MOAs and selected restricted airspace from current levels, and no change or additional impacts would result.
Infrastructure & Transportation	No Effect		
Socioeconomics	It is anticipated that a change in flight operations to night hours would not	Under Alternative B, the number of nighttime sorties is expected to remain the same and	Under the No Action Alternative, socioeconomics resources would

Table 1-16. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>substantially change noise levels under the airspace and would not be expected to adversely impact residential or recreational users. In addition, current night time training activities within the affected environment would not be anticipated to present a significant impact on civilian air traffic since trends suggest that fewer IFR flights generally occur during the later evening hours and very little VFR flights occur during hours of darkness. Similarly, night bombing at two existing impact areas on DTA-West and YTA does not represent a change in activities. Resulting noise levels of concern would remain within military boundaries and away from existing population centers.</p> <p>The potential for impacts on socioeconomic resources from night training are anticipated to be low.</p>	<p>occur during MFEs, as is the current situation, but would be divided between the months of March and October and would extend the operating hours until midnight and landing by 1:00 a.m.</p> <p>Under Alternative B, impacts on socioeconomic resources are anticipated to be similar to those described under Alternative A.</p> <p>The potential for impacts to socioeconomic resources under Alternative B are anticipated to be low to medium.</p>	<p>remain under current existing conditions.</p>
Subsistence	<p>Under Alternative A, the change in flight operations, including bombing, to night hours would not substantially change noise levels under the airspace and is not expected to adversely impact wildlife species.</p> <p>No significant impacts, as defined by ANILCA, on subsistence resources or activities are expected.</p>	<p>Potential impacts on subsistence resources and activities would be the same as those described under Alternative A.</p>	<p>No changes in times of flight are proposed under the No Action Alternative. Therefore, subsistence resources would be the same as under current existing conditions.</p>
Environmental Justice	<p>No Effect</p>		
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> <p>National Wild and Scenic Rivers Protection (Biological Resources; Land Use-Management, Access, Recreation) For the period of May 15 to September 30, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-nautical mile buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake).</p> <p>VFR Flight Corridors (Airspace Management; Safety – Flight; Biological Resources; Land Use-Management, Access, Recreation; Socioeconomics; Subsistence)</p> 			

Table 1-16. Summary of Impacts for Night Joint Training (Continued)

Resource Area	Alternative A	Alternative B (Preferred Alternative)	No Action Alternative
	<p>Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.</p> <ul style="list-style-type: none"> Concentrated Activity Areas (Land Use-Management, Recreation; Socioeconomics) Comply with flight avoidance areas established by the 11th Air Force Airspace and Range Team and listed in the 11th Air Force Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th Air Force Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist). 		

Key: ALCOM=Alaskan Command; ATC=Air Traffic Control; BASH=bird/wildlife-aircraft strike hazard; CDNL=C-weighted day-night average sound level; dB=decibel; DoD=U.S. Department of Defense; JPARC=Joint Pacific Alaska Range Complex; L_{dnmr}=onset rate-adjusted day-night average sound level; MFE=major flying exercise; MOA=Military Operations Area; MSL=mean sea level; NHPA=National Historic Preservation Act; NJT=Night Joint Training; RNAV=Area Navigation; ROD=Record of Decision; SHPO=State Historic Preservation Officer; SUA=Special Use Airspace; UXO=unexploded ordnance; VFR=Visual Flight Rules; YTA=Yukon Training Area.

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
Airspace Management and Use (Key impacts by individual proposed UAV corridor)	<p>Link between Eielson AFB and R-2211</p> <p>The proposed restricted area would adjoin the ceiling of the Eielson AFB Class D airspace and would require that UAV flights be separated from other airfield operations while transitioning between the runway environment and the overlying corridor. Procedures would be outlined in a formal agreement among the responsible UAV functions, Eielson AFB airfield management, and the Fairbanks/Anchorage ATC facilities to define how this airspace would be integrated with the Class D airspace structure and uses, when active.</p> <p>The Federal airway potentially affected by this proposal is the V444/T232/A2/A15 segment that intersects this corridor. An average of two IFR flights transits this airway daily with typical assigned altitudes at 8,000 feet MSL and above. This is within the range of altitudes proposed for this corridor use. Depending on the days and time periods this restricted area is activated, there may be a minimal impact on these few daily flights should they be delayed or rerouted around this corridor by the FAA.</p>	<p>Same as Alternative A for each proposed UAV corridor.</p> <p>Currently, a Certificate of Authorization is used as an alternative to establishing a restricted area for limited UAV types and operational needs. USARAK currently uses this option as needed to support their limited UAV requirements. Because of the restrictive nature of a Certificate of Authorization, the potential effects of establishing this type</p>	<p>Under this alternative, no restricted area or other designated airspace would be considered for a UAV corridor; therefore, there would be no additional impacts on civil aviation use of this airspace.</p>

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>This proposal has the greatest potential to adversely affect VFR air traffic operating along the highways, flyways, and other flight paths commonly flown between Fairbanks and points south and southeast where they would typically operate through the area of this proposed restricted area, without mitigations to avoid or reduce adverse impacts.</p> <p>Fairbanks International, Bradley, and several other more distant public and private airfields in the general area may be potentially affected by the ability for based aircraft to transit to/from destinations where their routes of flight would normally require transit through this proposed airspace. As noted by the FAA, this corridor would have the potential to affect the routing and sequencing of Fairbanks arriving and departing traffic. It was also noted that the Fairbanks TRACON airspace provides flight training opportunities for both VFR and IFR flight training that could be also affected by this proposal.</p>	<p>designation was considered to be the same as discussed above for Alternative A relative to the limitations and restrictions the active status of this corridor may have on civil aviation airspace uses.</p>	
<p>Airspace Management and Use</p>	<p>Link between Eielson AFB and R-2205</p> <p>Activation of this proposed corridor would be independent of or in conjunction with the proposed restricted area expansion for R-2205 to integrate/accommodate compatible USARAK and Air Force flight activities</p> <p>In all cases, this airspace would be under the positive control of the Fairbanks TRACON or Anchorage ARTCC to ensure separation is maintained between this corridor use and other nonparticipating IFR air traffic in region.</p> <p>No Federal airways transit within or close proximity to this proposed corridor, therefore, the potential direct impacts of this restricted airspace on airway traffic would be minimal. However, as noted by the FAA, there may be indirect impacts on any airway traffic that would normally be directed by ATC through this affected airspace while transiting to/from Ladd AAF, Eielson AFB, or Fairbanks International.</p> <p>The only jet/RNAV route transiting the affected area is the NCA 22 track used primarily by air traffic operating at FL290 and above and would not be impacted by use of this restricted airspace corridor.</p>	<p>Same as Alternative A.</p>	<p>Under this alternative, no restricted area or other designated airspace would be considered for establishing this UAV corridor; therefore, there would be no additional impacts on civil aviation use of this airspace.</p>

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>Public input suggests the majority of VFR air traffic flights operate west of the Eielson AFB and adjacent YTA region with this corridor having minimal impact on this aviation community.</p> <p>No public airports or private airfields are located in close proximity to this proposed corridor.</p>		
<p>Airspace Management and Use</p>	<p>Link between Allen Army Airfield and R-2202</p> <p>This corridor would provide the restricted airspace environment required to transit UAV aircraft between Allen AAF and R-2202. Allen AAF serves Fort Greely military aviation activities while permitting civil aircraft to operate at this airfield on a prior permission required basis.</p> <p>This proposed restricted area corridor is located within or near federal airway V-444/T-232, V-515, and V-481/T226/B25, which all converge at Delta Junction. FAA data indicate the daily average use of these routes is 2 to 3 IFR flights. Potential impacts of this restricted area on the lower density use of these airways and any other off-route air traffic in this region would be minimal, depending upon the flight times/altitudes and the activated corridor times/altitudes use which would be under the positive control of the Anchorage ARTCC.</p> <p>For jet/RNAV routes, the daily average 3 IFR flights en route along the J-167 segment transiting this region would be above the altitudes proposed for the restricted area corridor and be unaffected by this action.</p> <p>This proposed restricted area would cross the Richardson Highway flyway commonly used by VFR aircraft to transit between the Fairbanks area and points south of the Allen AAF. During the times this airspace is active, VFR flights would be restricted from operating through this area and would need to either delay their flights or circumvent Allen AAF to the west to remain clear of this corridor. This impact would be increased during time periods that both this corridor and the proposed BAX restricted area are active. Such impacts could be considered significant, depending upon the extent to which one or both restricted areas are activated and at what altitudes and those mitigation measures to be considered by USARAK to minimize impacts on this aviation community.</p>	<p>Same as Alternative A.</p>	<p>No restricted area or other designated airspace would be established to support any UAV operations; therefore, there would be no additional impacts on the current uses of this airspace.</p>

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>Several airfields are located in the immediate area to include Delta Junction, and six to eight private airfields within about a 10-NM radius of the Allen AAF. Many of these airfield operations would be VFR flights which may be potentially impacted by restricted airspace crossing the Richardson Highway flyway.</p>		
<p>Airspace Management and Use</p>	<p>Link between R-2202 and R-2211</p> <p>This corridor would enable UAV training flights to transit between the two restricted areas so as to maximize use of their respective range capabilities.</p> <p>There are no federal airways transiting within the proposed airspace.</p> <p>No jet/RNAV routes are located within or near the proposed corridor.</p> <p>Depending on the altitudes activated for this corridor, VFR air traffic may be unable to transit through this area at the lower altitudes required to remain below this active airspace. Depending on the volume of VFR aircraft that operate within this area, it cannot be determined to what extent this restriction would impact the general aviation community. VFR pilots having a need to operate within this area may have to delay or otherwise alter their flights to avoid this restricted area when active. The active status of this airspace would be provided via the SUAIS and other advisory services.</p> <p>No public or private airfields are located within close proximity to this proposed corridor.</p>	<p>Same as Alternative A.</p>	<p>No restricted area or other designated airspace would be considered for UAV operations; therefore, there would be no additional impacts on current civil aviation use of this airspace.</p>

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
<p>Airspace Management and Use</p>	<p>Link between R-2205 and R-2202</p> <p>This corridor would be used for those training missions where UAV may transition between these restricted areas and use the range impact areas within each.</p> <p>This proposed corridor would cross federal airway V-444/T232 and could encompass those altitudes assigned by ATC for this route air traffic. This proposal may have moderate potential impacts on the reported two to three average daily flights using this airway and any transition of these aircraft to/from Fairbanks International. ATC may have to reroute or delay nonparticipating aircraft from this active corridor, when necessary. Mitigation measures to address adverse impacts will be examined by the FAA.</p> <p>The two jet/RNAV routes transiting within or near this proposed corridor are J502-515 and J167. The daily average 6 to 12 IFR flights on J520-515 and 3 IFR flights on J-167 would normally transit at altitudes above the corridor ceiling and would not be impacted by this active restricted area.</p> <p>This corridor may have the potential for moderate to significant impacts on VFR aircraft that frequently operate along those highway, river, and pipeline flyways commonly flown by this traffic between the Fairbanks and Delta Junction areas. This may cause flight delays or rerouting. Pilots would need to obtain the active status of this airspace through NOTAMs, the SUAIS, and other available advisory services prior to conducting a flight through this area.</p> <p>A number of public and private airfields are located in the Fairbanks and Delta Junction areas that, while not directly affected by this proposal, may have aircraft that would be subject to flight restrictions, delays, and other inconveniences if their route of flight transited this proposed airspace.</p>	<p>Same as Alternative A.</p>	<p>No restricted area or other designated airspace would be considered to support UAV operations; therefore, there would be no additional impacts on civil aviation use of this airspace.</p>
<p>Airspace Management and Use</p>	<p>Link between Fort Wainwright and R-2211</p> <p>The corridor would adjoin the class D airspace overlying Fort Wainwright (Ladd AAF) and would therefore require a coordinated effort in planning UAV takeoffs, landings, and transition to the restricted area corridor be appropriately segregated from other airfield operations and missions within and outside of this terminal airspace.</p>	<p>Same as Alternative A</p>	<p>No restricted area or other designated airspace would be considered to support UAV operations; therefore, there would be no additional impacts on civil aviation use of this airspace.</p>

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>Procedures for integrating this corridor airspace with the Ladd AAF Class D airspace and segregating UAV operations from other air traffic would be defined in an agreement among all responsible entities.</p> <p>This proposed corridor would cross V-444/T232 and have the potential for impacts on this airway traffic. The extent to which this corridor would impact control and management of air traffic operations in this airspace environment will be further examined in the FAA aeronautical study.</p> <p>En route jet/RNAV air traffic in level flight at the higher altitudes on J502-515 and other routes transiting within/near this affected area would not be impacted by this proposed corridor.</p> <p>The potential impacts this proposed corridor may have on VFR air traffic would be the same as discussed above for other restricted airspace proposals intersecting commonly used VFR flyways.</p> <p>The location of this corridor within the Fairbanks terminal airspace and its close proximity to Fairbanks International, Eielson AFB, the Bradley airport, and several private airfields in this general area may impact the ATC options for routing air traffic arrivals/departures through this airspace environment. Any potential impacts this proposal may have on this terminal airspace environment, arrival/departure routes and gates, and instrument procedures would be the focus of the FAA aeronautical study for this proposal.</p>		
<p>Airspace Management and Use</p>	<p>Link between Fort Wainwright and R-2205</p> <p>The manner in which this corridor would be scheduled, managed, and used is the same as discussed previously to link Fort Wainwright with R-2211.</p> <p>This corridor would not intersect any federal airways and therefore would not have any direct impacts on airway traffic.</p> <p>This corridor would also not intersect any jet/RNAV routes in the area and therefore not impact this en route traffic other than potentially any transitioning of this route traffic between a jet route and Fairbanks International Airport.</p>	<p>Same as Alternative A.</p>	<p>No restricted area or other designated airspace would be considered to support UAV operations; therefore, there would be no additional impacts on civil aviation use of this airspace.</p>

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	This proposed corridor is more distant from those areas and flyways where VFR air traffic more frequently operate and may have less impact on general aviation.		
Noise	The corridors would have a floor altitude of 1,200 AGL. Overflight noise levels would be similar to noise levels generated by common civilian aircraft. Time-averaged noise levels in the corridors were calculated under the highly conservative assumption that all UAVs would follow a single flight track and would fly at the lowest altitude permitted. Under this scenario noise levels generated by the proposed UAV operations would be approximately 35 dB L _{dnmr} . UAV overflight could potentially result in annoyance, but noise impacts would not exceed significance thresholds established for this action.	Same as Alternative A.	Under the No Action Alternative, restricted area UAV corridors would not be established, UAV activity would continue to occur as it does under baseline conditions, and no additional noise impacts would occur.
Flight Safety	<p>The flight safety assessment includes all seven proposed UAV corridors.</p> <p>The potential risk of an aircraft mishap for UAV operations under this alternative would be low. Mishap rates for UAV aircraft continue to decline as technologies, pilot-operator experience, and other advances provide for the enhanced command, control, and operation for UAVs and flight activities.</p> <p>The potential for a near miss/midair collision between UAV and other military or civilian aircraft would be minimal since these operations would be contained within protective airspace that separates these activities from other aircraft.</p> <p>Since UAV aircraft operate at much lower speeds and has a smaller profile than manned aircraft, the potential for bird-strike damage causing catastrophic damage is extremely low.</p>	Same as Alternative A.	No UAV activities or protective airspace for their operations would be considered under the No Action Alternative; therefore, there would be no additional impacts or added flight or ground safety concerns associated with this alternative.
Ground Safety	UAV armaments would not be used within these corridors; therefore, this alternative does not include activities that pose ground safety hazards, such as air-to-ground or live-fire ordnance training. Consequently, impacts on ground safety are not expected to occur.	Same as Alternative A.	Under the No Action Alternative, restricted area UAV corridors would not be established and UAV activity would continue to occur as it does under current existing conditions.
Air Quality	The air quality assessment includes all seven proposed UAV corridors.	Same as Alternative A.	Air quality impacts under the No Action Alternative would not differ from air quality impacts

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>Any increases in particulate matter and carbon monoxide emissions from proposed operations in the seven UAV corridors would not exceed their applicable <i>de minimis</i> conformity thresholds of 100 tons per year. Thus, air quality impacts from Alternative A would not be considered significant, and a conformity determination is not necessary.</p> <p>Additionally, increases in emissions of the other criteria pollutants from Alternative A would not exceed their applicable PSD significance thresholds of 250 tons per year.</p> <p>Combustive emissions from the operation of UAVs in the corridors would contain HAPs that could potentially impact public health. However, as indicated by the low level of criteria pollutant emissions, UAV operation in the corridors as proposed under Alternative A would not be expected to result in significant impacts on public health, as the mobile and intermittent nature of these sources and the wide geographic regions of proposed operations would produce minimal impacts of HAPs in a localized area.</p> <p>As the increases in emissions that would result from operations under Alternative A would be minimal, the impacts from proposed emissions under this alternative on air quality-related values in Denali National Park would be expected to be negligible.</p>		<p>generated by existing operations in the affected areas.</p>
Physical Resources	No Effect		
Water Resources	No Effect		
Hazardous Materials and Waste	No Effect		
Biological Resources	No Effect		
Cultural Resources	<p>The cultural assessment includes all seven proposed UAV corridors.</p> <p>No impacts are anticipated to cultural resources from the proposed establishment of the UAV corridors and their training use.</p> <p>In compliance with Section 106 of the NHPA, the Army has completed consultation with the Alaska SHPO, who has concurred with the Army’s determination of no adverse effect to historic</p>	<p>Same as Alternative A.</p>	<p>Under the No Action Alternative there would be no expansion of restricted areas for the proposed UAV access corridors, no UAV corridors or operations would occur between various elements of SUA in the JPARC, and impacts on cultural</p>

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	<p>properties.</p> <p>No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed establishment of the UAV corridors and their training use.</p> <p>All compliance requirements for consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities have been completed.</p>		<p>resources would be as under existing conditions.</p>
Land Use	<p>The land use assessment includes all seven proposed UAV corridors.</p> <p>The primary source of impact to surface uses is from noise from UAVs, and perceptions of safety concerns. The projected noise levels for UAV operations in the corridor sectors with a minimum floor altitude of 1,200 feet AGL of 41 dB L_{dnmr} and of 33 dB L_{dnmr} for those with floor altitudes of 3,000 feet is below thresholds of concern for any land use.</p> <p>Operations of UAVs would not inhibit access to any roads, trails, recreational areas or other locations on the ground. Consequently, this proposal would have no effect on public ground access.</p>	<p>Same as Alternative A.</p>	<p>Under the No Action Alternative, no UAV corridors or operations would occur between various elements of SUA in the JPARC. No changes or additional impacts affecting land use, public access or recreation would occur.</p>
Infrastructure & Transportation	<p>No Effect</p>		
Socioeconomics	<p>The socioeconomic assessment includes all seven proposed UAV corridors.</p> <p>UAV access could potentially affect general aviation, resulting in economic impacts to regional business and communities from delays or fuel costs associated with rerouting. Such impacts would depend on civil air traffic densities/peak periods and the individual areas and time frames in which the proposed UAV flight activities would occur. The FAA and Air Force would address any impacts and mitigation measures to be taken before implementation of any airspace proposals.</p> <p>The economic impacts of any commercial or other civil aviation aircraft being delayed or diverted to any extent around the proposed corridors when active cannot be quantified due to the many factors to be considered in estimating such impacts.</p> <p>Economic impacts to general aviation pilots would depend on routes</p>	<p>Same as Alternative A.</p>	<p>Under the No Action Alternative, no UAV corridors would be established. Therefore, no changes to the current existing conditions of socioeconomic resources are anticipated.</p>

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
	of flight and decisions on whether to delay flight when the corridor is active versus flying through or avoiding the corridors.		
Subsistence	<p>The subsistence assessment includes all seven proposed UAV corridors.</p> <p>The narrow corridors of restricted airspace would be active for a maximum of 50 days per year. It is not expected that access to subsistence resources by aircraft would be impacted, and thus that harvest of subsistence resources would not be delayed to such a degree that the communities ranked as high in dependence on subsistence resources would be adversely impacted.</p> <p>Additionally, public access to the area beneath the restricted airspace corridors would not be restricted, and individuals would continue to participate in subsistence resources as they are currently practiced.</p> <p>Therefore, no significant impacts to subsistence resources as defined by ANILCA would be expected.</p>	Same as Alternative A.	Under the No Action Alternative, no new restricted airspace or Certificate of Authorization airspace would be established. Subsistence activities would continue as they are currently practiced.
Environmental Justice	<p>The environmental justice assessment includes all seven proposed UAV corridors.</p> <p>Public access to the area beneath the restricted airspace corridors would not be restricted. Based on a review of environmental consequences for other related resources, potentially significant impacts would be reduced through proposed mitigations and other management actions. No disproportionately high and adverse environmental or health effects on minority and low-income populations or children would occur.</p>	Same as Alternative A.	No restricted airspace or Certificate of Authorization airspace would be established and conditions and practices in the area would continue as they currently exist. There would be no additional disproportionately high and adverse environmental and health effects on minority and low-income populations or children.
<p>MITIGATION MEASURES:</p> <ul style="list-style-type: none"> • FAA’s study (Airspace Management) Pending the FAA’s study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals. • Sandhill crane surveys (Safety-Flight) Conduct sandhill crane surveys during spring and fall migration periods. • Special use airspace safety (Safety-Flight) Continue efforts to comply with the respective Service formal flight safety programs, outlined in directives/regulations with supplements, that dictate those aircrew responsibilities and practices aimed at operating all manned and unmanned aircraft safely in existing modified and new SUAs. • Subsistence use consultation (Subsistence) Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into 			

Table 1-17. Summary of Impacts for Unmanned Aerial Vehicle Access (Continued)

Resource Area	Alternative A (Preferred Alternative)	Alternative B	No Action Alternative
<p>scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA.</p>			

Key: AAF=Army Airfield; AFB=Air Force Base; AGL=above ground level; ANCSA=Alaska Native Claims Settlement Act; ANILCA=Alaska National Interest Lands Conservation Act; ARTCC=Air Route Traffic Control Center; ATC=Air Traffic Control; BAX=Battle Area Complex; dB=decibel; FAA=Federal Aviation Administration; FL=flight level; HAP=hazardous air pollutant; IFR=Instrument Flight Rules; L_{dnmr} =onset rate-adjusted day-night average sound level; MSL=mean sea level; NCA=Northern Control Area; NHPA=National Historic Preservation Act; NM=nautical mile; NOTAM=Notice to Airmen; PSD=prevention of significant deterioration; RNAV=Area Navigation; SHPO=State Historic Preservation Officer; SUA=Special Use Airspace; SUAIS=Special Use Airspace Information Service; TRACON=Terminal Radar Approach Control; UAV=unmanned aerial vehicle; USAG-FWA=U.S. Army Garrison Fort Wainwright, Alaska; USARAK=U.S. Army Alaska; VFR=Visual Flight Rules; YTA=Yukon Training Area.

Chapter 2

Description of Proposed Action and Alternatives

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This chapter describes the proposed actions and alternatives to achieve the vision for the Joint Pacific Alaska Range Complex (JPARC). The proposed actions and alternatives have been structured to modernize and otherwise enhance flight and ground training opportunities and infrastructure, provide additional airspace for military training, enhance the availability of restricted areas to support training, improve range support infrastructure and operations, and modernize and otherwise enhance testing at JPARC. Proposals for improving and expanding the training capacity of JPARC to support flying and ground-based training and exercises are described in this section.

The definitive proposed actions and alternatives, including No Action Alternatives for each proposal, are described in sufficient detail to assess the foreseeable environmental consequences. The programmatic proposed actions and alternatives, including No Action Alternatives for each proposal, include baseline information and available information to assess the foreseeable environmental consequences, but require additional planning, programming, and design. This section also identifies implementation options for each of the objectives in the *JPARC Master Plan, August 2011 (JPARC Master Plan)* that were not carried forward for further evaluation in this environmental impact statement (EIS) after it was determined that they would not meet future training or testing requirements for JPARC.

The actions being proposed are independent of each other and have standalone value for improving training and testing operations. Some projects solely benefit Air Force or Army training, whereas others benefit both or other Services. While full implementation of all of the proposed actions is desired and would result in the greatest training benefit for Airmen and Soldiers, each of the proposals, if implemented alone, would have a positive effect on the modernization and enhancement of JPARC.

Establishing JPARC as a full-spectrum, all-domain joint military testing and training facility would address the testing and training deficiencies and limitations described in Chapter [1.0](#), Purpose and Need for the Proposed Actions.

2.1 DEFINITIVE ACTIONS EVALUATED IN THIS EIS

The following are definitive projects being evaluated in this EIS:

- Fox 3 Military Operations Area (MOA) Expansion / Paxon MOA Addition (Air Force)
- Realistic Live Ordnance Delivery (RLOD) (Air Force)
- Battle Area Complex (BAX) Restricted Area Addition (Army)
- R-2205 Expansion, including the Digital Multi-Purpose Training Range (DMPTR) (Army)
- Night Joint Training (NJT) (Air Force)
- Unmanned Aerial Vehicle (UAV) Access (Army)

For the definitive proposals, the decision makers have enough information to identify discreet impacts, conduct a thorough impact analysis, assess both adverse and beneficial impacts, and identify specific mitigation measures to minimize or mitigate adverse impacts, as may be applicable.

2.1.1 Fox 3 MOA Expansion and New Paxon MOA

As the fifth generation of U.S. Air Force fighters (F-22 and F-35 aircraft) is developed, fielded, and deployed in combat, pilots will need to train in the skills and tactics appropriate for these aircraft within an airspace best configured for such training. Combat conditions have proven that engaging a threat at

low altitudes is a critical tactic for combat success. The airspace environment required to most effectively rehearse this engagement is a lateral area of 180 by 60 nautical miles (NM) with altitudes from 500 feet above ground level (AGL) up to flight level (FL) 600 (60,000 feet above mean sea level [MSL]). Engagements would involve the long axis of the airspace, with threat aircraft maneuvering at low altitudes through terrain at one end and a fifth-generation fighter advancing against the threat from the other end. Both Eielson Air Force Base (AFB) aircraft (taking the role of adversary aircraft) and the Joint Base Elmendorf-Richardson (JBER) aircraft (F-22 Raptors) require access to this airspace; therefore, expanding this training airspace environment, as shown in [Figure 2-1](#), would place it in closer proximity to JBER so as to reduce flight times and distances to this airspace, maximize training productivity within this airspace, and reduce fuel usage.

The proposed alternatives for this action were based on meeting the following requirements and selection criteria:

- The MOA must have a floor of 500 feet AGL.
- The MOA must be large enough for fifth-generation aircraft to conduct effective engagements.
- The MOA must be in a location central to JBER and Eielson AFB.
- The airspace should minimize the interruption of commercial and general aviation traffic.
- The proposed Fox 3 and Paxon MOAs would inhibit instrument flight rules (IFR) traffic in the proposed Paxon MOA during major flying exercises (MFEs). These exercises would close the IFR airways for 2.5 hours twice a day for up to 60 days per year. MFEs are scheduled months in advance, so that any IFR flight could be planned around the military exercise times.

To support the nonhazardous training to be conducted in this proposed airspace (i.e., no live fire or ordnance use), the designated MOA must have a floor no higher than 500 feet AGL, be of sufficient size to allow opposing aircraft to maneuver and engage from multiple, diverse directions, and have adequate radar and radio coverage for effective command and control. A multidirectional axis is essential in replicating a true combat environment and thus making all exercise and routine training mission activities as realistic as possible. This environment must include targets and airspace that allow for multi-axis, all-altitude approaches for dry target bombing runs from FL200 to FL500. Currently, engagements are restricted to a north-south axis only, which limits offensive and defensive tactics and scenarios. Most important, this training airspace must have minimal impacts on all commercial and general aviation air traffic operating within the region. All of these key siting factors were considered in the proposal to expand the existing Fox 3 MOA and establish a new Paxon MOA adjacent to this expanded airspace shown in [Figure 2-1](#) and [Figure 2-2](#) for Alternatives A and E.

2.1.1.1 Proposed Action

The Air Force proposes to expand the Fox 3 MOA and establish a new, adjacent Paxon MOA to provide the vertical and horizontal airspace structure required to more effectively accommodate low-altitude threat and multi-axis mission activities for fifth-generation fighters during JPARC training activities. The expanded airspace would also reduce aircraft transit distances from JBER, thus reducing fuel use while optimizing training opportunities within this airspace.

Use of these MOAs would be included as part of the Special Use Airspace Information Service (SUAIS) that is currently used on a 24-hour basis to inform civilian pilots when the MOAs and restricted areas within central Alaska are being scheduled and used (activated) for conducting planned military operations. This would afford pilots the opportunity to better schedule their flight activities around those times when this airspace is active or otherwise plan their flight profiles around this airspace.

[Table 2-1](#) compares the existing airspace structure with that proposed under each alternative described in this section and shown in [Figure 2-1](#) and [Figure 2-2](#).

Table 2-1. Comparison of Existing Fox 3 MOA with Each Proposed Alternative

MOA	Existing	Alternative A	Alternative E
Fox 3	5,000 feet AGL up to but not including FL180.	Expand Fox 3 MOA to east and south as shown in Figure 2-1 . Stratify expanded Fox 3 MOA vertically into low (500 feet AGL up to but not including 5,000 feet AGL) and high (5,000 feet AGL up to but not including FL180) strata.	Reduced in size from Alternative A proposal with high- and low-altitude strata. See Figure 2-2 .
Paxon	Not applicable.	Establish new MOA east and adjacent to the expanded Fox 3 MOA from 500 feet AGL up to but not including FL180, as shown in Figure 2-1 . Paxon MOA would be stratified vertically into low (500 feet AGL up to but not including 14,000 feet MSL) and high (14,000 feet MSL up to but not including FL180) strata.	Establish new MOA as described for Alternative A with the southern boundary aligned as shown in Figure 2-2 . Paxon MOA would be stratified vertically the same as described for Alternative A.

Key: AGL=above ground level; FL=flight level; MOA=Military Operations Area; MSL=mean sea level.

2.1.1.1.1 Alternative A

AIRSPACE STRUCTURE

Expanded Fox 3 MOA

Alternative A would expand the current Fox 3 MOA boundaries to the south and east as shown in [Figure 2-1](#) and stratify the boundaries into low and high sectors, with the low extending from 500 feet AGL up to but not including 5,000 feet AGL, and the high extending from 5,000 feet AGL up to but not including 18,000 feet MSL (FL180).

New Paxon MOA

The other component of this airspace proposal is to establish a new Paxon MOA to the east of and adjoining the proposed expanded Fox 3 MOA, as shown in [Figure 2-1](#). This proposed MOA would also be stratified into low and high sectors with the low extending from 500 feet AGL up to but not including 14,000 feet MSL, and the high extending from 14,000 feet MSL up to but not including FL180. This MOA would be used in conjunction with the proposed expanded Fox 3 MOA to provide the additional airspace and dry target area sites required for more-realistic training scenarios and thus to more fully support RED FLAG–Alaska.

This proposed MOA, coupled with the Fox 3 MOA expansion and lowered floors, would also expand the capability to perform multiple missions simultaneously and provide greater flexibility for enhanced air-to-ground maneuvers throughout a larger airspace complex. The Paxon MOA would also provide the additional maneuvering airspace needed to conduct air-to-air combat intercept and close air support (CAS) training in conjunction with those air-to-ground activities performed in Restricted Areas R-2202 and R-2205. Improved connectivity and reception of the air combat maneuvering instrumentation (flight data recording system) in the Fox MOAs would markedly improve the communications capabilities needed to support enhanced RED FLAG–Alaska training. SUAIS capabilities and the manner in which this service is provided is outlined in an Federal Aviation Administration (FAA) agreement and Air Force procedures. Any changes to these capabilities relative to existing or proposed airspace uses are appropriately reflected in the FAA agreement and communicated to the public.

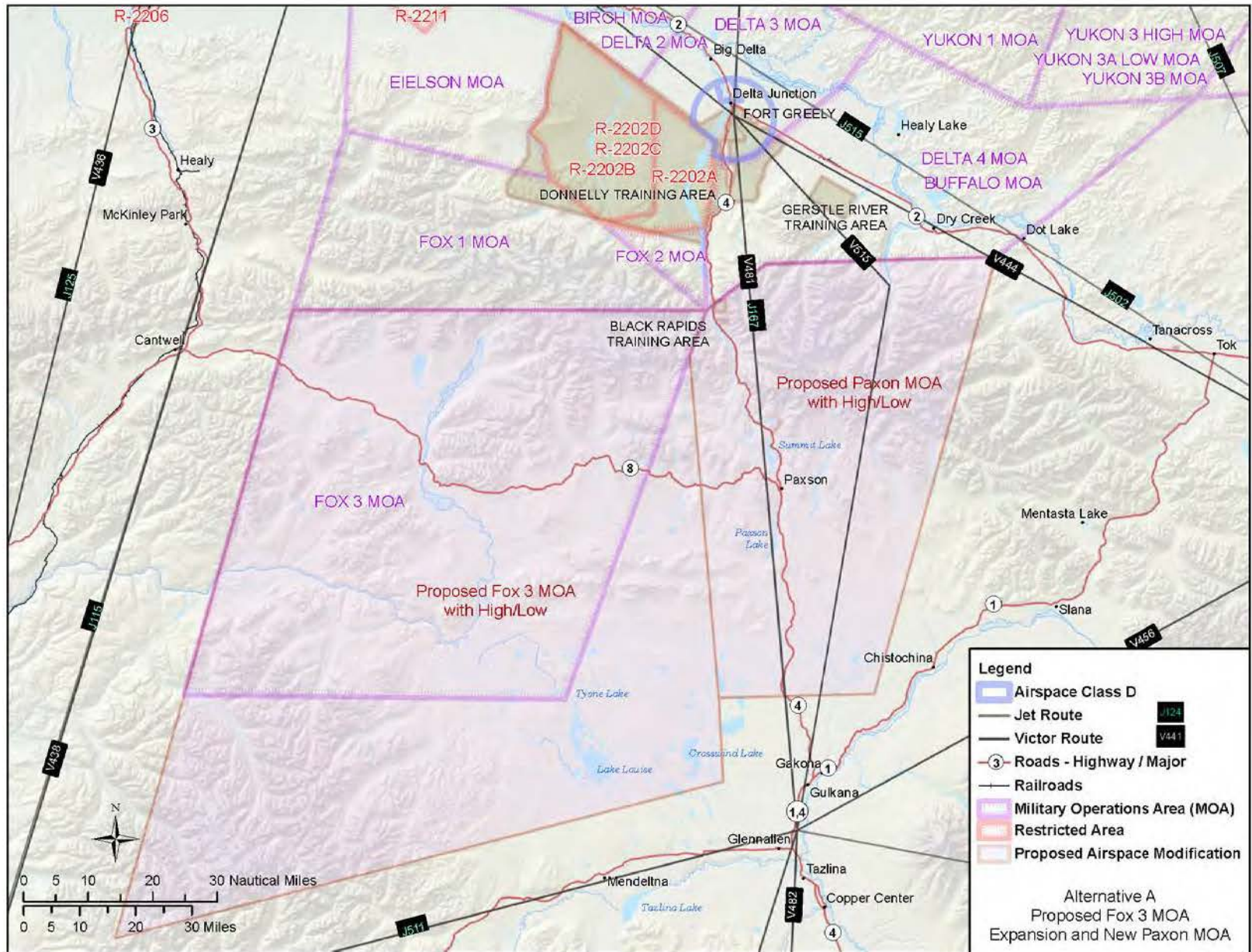


Figure 2-1. Alternative A Proposed Fox 3 MOA Expansion and New Paxon MOA

As noted previously, establishing this proposed airspace between Eielson AFB and JBER would provide an essential middle ground for achieving more-effective flight training missions; it would reduce the need for aerial refueling support, resulting in greater energy-cost savings and more productive training time within this airspace environment.

AIRSPACE USE

Expanded Fox 3 MOA

[Table 2-2](#) contrasts the representative baseline sortie-operations with those estimated for each proposed alternative. A sortie refers to an operational mission conducted by a single aircraft from takeoff to landing while a sortie-operation refers to a flight activity conducted by that single aircraft within a designated airspace area during the sortie mission. Airspace-use tracking typically accounts for an aircraft sortie-operation within each area it operates throughout the course of the overall training mission. These sortie-operation projections are based on anticipated future changes in training/exercise operations, and the likelihood that a good portion of the current JBER training sorties would be relocated from the more distant Stony MOA (approximately 120 NM west of JBER) to the less distant expanded Fox 3 MOA (approximately 60 NM north of JBER). Projected sortie-operations by different aircraft types are further described and discussed in the EIS analyses. This expanded MOA would be activated year-round as needed to support MFEs as well as routine training. Routine training includes all ongoing aircrew qualification and continuation training dictated by Ready Aircrew Program requirements for each aircraft type. Current Fox 3 MOA published times of use are 8:00 a.m. to 6:00 p.m. local time, Monday–Friday and other times by Notice to Airmen (NOTAM). The Fox 3 MOA is also available on weekends between 7:00 a.m. and 10:00 p.m.

[Table 2-3](#) presents the representative baseline listed in [Table 2-2](#) by the aircraft types conducting those sortie-operations within the existing Fox 3 MOA and overlying Air Traffic Control Assigned Airspace (ATCAA), the existing Paxon ATCAA, and the Stony MOA during a typical 1-year period. The Stony MOA is currently used by JBER aircraft but, due to its distance from JBER, it is estimated that about half of the Stony MOA missions would be reallocated to the less distant Fox 3 MOA if the boundaries are expanded as proposed. This representative baseline is inclusive of aircrew training missions, MFEs (RED FLAG–Alaska and NORTHERN EDGE flight operations), and other flight activities that would be conducted within this airspace over a 12-month period. This baseline includes adjustments in sortie-operations resulting from planned reallocation of Stony sorties to the expanded Fox 3 MOA. Appendix D, *Airspace Management*, includes a table (Table D-3) that provides estimated percentages of sortie duration time that those aircraft types typically operate within the different altitudes listed in the table. This altitude distribution information is discussed further in the EIS, as these estimates relate to impact analyses for airspace, noise, air quality, and other resource areas, as appropriate.

Table 2-2. Representative Baseline and Estimated Alternative Sortie-Operations

MOA	Representative Baseline Use ¹	Alternative A Estimated Use ¹	Alternative E Estimated Use ¹
Fox 3	9,877	11,127	11,127
Paxon	Not Applicable	11,127 ²	11,127 ²
Stony A/B	2,499	1,250	1,250

¹ Based on fiscal year 2010 operations data adjusted to account for six annual MFEs, JBER F-22 basing/F-15 drawdown, and anticipated relocation of 50 percent Stony A/B sortie missions to extended Fox 3 MOA under Alternative A.

² Assumes Paxon MOA use would be the same use as the Fox 3 MOA representative use with about half of the sortie-operations being routine training at 14,000 feet MSL and above.

Key: MOA=Military Operations Area.

Table 2-3. Representative Baseline Use of Existing Fox 3 and Stony MOAs/ATCAAs and Paxon ATCAA by Aircraft Type

MOA/ ATCAA	Representative Annual Sortie-Operations by Aircraft Types ¹									
	A-10	AV-8	B-1B	B-2	B-52H	C-130	C-17	E-3	E-767	F-15
Fox 3	645	253	1	54	113	133	53	99	29	1,191
Paxon ATCAA	645	253	9	50	113	133	48	103	29	764
Stony	0	0	0	0	0	0	4	0	0	539
MOA/ ATCAA	F-16	F-16CJ	F-22	F-18	GR1	KC-10	KC-130	KC-135R	KC-767	Total
Fox 3	3,599	265	2,717	0	275	1	16	413	24	9,877
Paxon ATCAA	2,736	268	1,005	0	275	5	16	509	24	6,982
Stony	0	0	1,942	8	0	0	0	6	0	2,499

¹ Based on adjusted fiscal year 2010 operations data noted in [Table 2-2](#).

Key: ATCAA=Air Traffic Control Assigned Airspace; MOA=Military Operations Area.

Throughout Alaska’s training airspace, chaff and flares are used in air combat exercises as countermeasures to air- or ground-based threats. During training, an MFE aircraft sortie may deploy up to 14 bundles of chaff and four flares. Data collected from 2006 to 2008 show that a typical 10-day MFE uses 4,000 to 7,000 bundles of chaff and 1,000 to 2,000 flares. For the purpose of this proposal, a 10-day MFE is estimated to use 7,000 bundles of chaff and 1,800 flares within the overall MFE airspace.

Paxon MOA

The proposed use of the Paxon MOA would be the same as described for the expanded Fox 3 MOA with both MFE and routine training, with the exception that the routine training sorties would be limited to the high-altitude sector only (14,000 feet MSL and above). The low sector would be used only for MFEs, which are conducted up to six times annually and no more than 60 days per year. MFEs would use the high sector as well.

As currently occurs in the existing Special Use Airspace (SUA), MFE activities would be conducted in low/high sectors during two 1.5- to 2.5-hour blocks each weekday, with one MFE session in the morning and another in the afternoon. In practice, airspace used for the MFEs would typically be active in 1.5-hour blocks but could be scheduled in blocks up to a maximum of 2.5 hours to allow for aircraft launch, marshalling, and other sortie events that may require that longer period. During a typical MFE, there may be 100 single-aircraft sorties by a variety of aircraft types. Actual usage could vary depending upon the aircraft participating in an MFE and the specific training objectives. Unlike MFEs, a lower number of routine training sorties would be conducted within the Paxon high sector throughout the year for an average of 240 flying days. The daily times of use would be similar to those described for MFEs but with fewer aircraft.

The use of training chaff and flares during MFEs would be extended into the proposed Paxon MOA airspace. Their use would not increase within the overall airspace; rather, it would simply be distributed over a larger expanse of airspace proposed for the Paxon MOA.

GROUND/INFRASTRUCTURE ASSETS

In support of the new airspace projected for the Paxon MOA, it has been proposed that additional dry targets be integrated into the tactically relevant JPARC threat-air defense system. Pilots use dry targets to practice bombing tactics without the release of actual ordnance. According to plans, the dry target sites would be temporary and would not require permanent supporting infrastructure such as fencing, pads, power poles, hard lines, or permanent fixtures. They would be in the form of nonfunctional threat

vehicles and trailers approved by the Alaska Department of Transportation, and would be placed within MOA airspace such that they could be approached from a full 360 degrees. Additional ground support would include unmanned air defense threat emitters on trailers and microwave and ground/air very-high-frequency/ultra-high-frequency radios. The dry target ground support equipment would be located on lands currently withdrawn for exclusive military use or other Federal and State lands within the MOA boundaries.

2.1.1.1.2 Alternative E (Preferred Alternative)

Alternative E was added in consideration of public and agency scoping comments, as described below and analyzed in Chapter 3.0. Alternative E is the Preferred Alternative because it will still provide the Air Force with the ability to support multi-axis capability for fifth generation fighter aircraft to train at low altitudes in an area proximate to both JBER and Eielson AFB for optimal training efficiency, while decreasing impacts to airspace and local communities.

AIRSPACE STRUCTURE

Expanded Fox 3 MOA and New Paxon MOA

The overall airspace structure proposed under this alternative for the Fox 3 MOA expansion and the Paxon MOA would be smaller in size than proposed for Alternative A with the southern Fox 3 boundary moved approximately 20 NM to the north as shown in [Figure 2-2](#). This would result in an airspace reduction of approximately 1.164 million acres (1,820 square miles). The altitude structure would be the same for each of the Fox 3 and Paxon MOAs as proposed for Alternative A. MFEs would be conducted in both the Fox 3 and Paxon high/low sectors while routine training would be conducted within the Fox 3 high/low sectors but limited to 14,000 feet MSL and above in the Paxon MOA. This alternative would provide a greater separation from the airways, jet routes, recreational areas (to include Lake Louise and Wasilla-Palmer) and airfields located south of the proposed airspace boundaries.

The representative baseline and estimated aircraft sortie-operations and projected periods of use for both the expanded Fox 3 MOA and new Paxon MOA would be the same as described under Alternative A and listed in [Table 2-2](#).

GROUND/INFRASTRUCTURE ASSETS

Additional dry targets and support equipment would be the same as under Alternative A.

2.1.1.2 No Action Alternative

There would be no changes to the current Fox 3 MOA configuration and altitudes or proposed addition of the Paxon MOA under the No Action Alternative. This would not satisfy the requirement for multi-axis, low-altitude threat training that is needed to effectively train with fifth-generation fighter aircraft. The No Action Alternative would continue to require distant travel, which would negate opportunities to minimize fuel use while maximizing sortie training time in the expanded airspace being proposed.

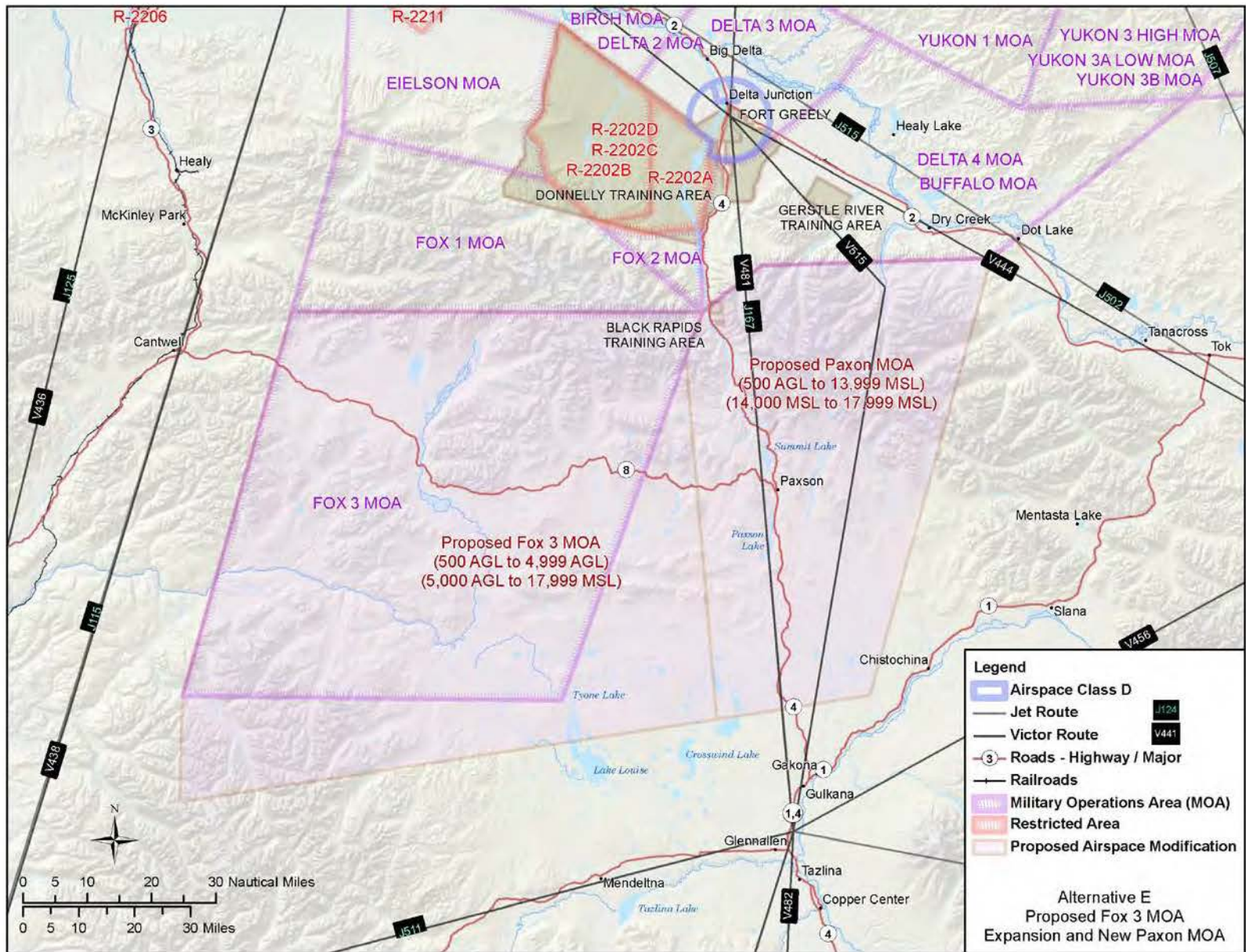


Figure 2-2. Alternative E Proposed Fox 3 MOA Expansion and New Paxon MOA

2.1.1.3 Alternatives Considered But Not Carried Forward

Three alternatives presented during the scoping process were determined to not provide the lateral and vertical airspace structure required to fully achieve the stated objectives for expanding the current training airspace environment. Therefore, these alternatives were not carried forward. As indicated previously, Alternative E was added and analyzed as another viable option for achieving the stated objectives for this proposal.

- Alternative B: This alternative included only the Fox 3 MOA expansion as proposed for Alternative A without the proposed new Paxon MOA.
- Alternative C: This alternative included the Fox 3 expansion as proposed for Alternative A without the lower altitude sector below 5,000 feet AGL.
- Alternative D: This alternative proposed to keep the Fox 3 MOA boundaries the same as they currently exist with the same high and low altitude strata as proposed for Alternative A.

2.1.2 Realistic Live Ordnance Delivery

2.1.2.1 Proposed Action

The proposed Air Force action is to establish a realistic air-to-ground training environment that would accommodate live and inert ordnance delivery. As the technology for new weapons systems continues to evolve, the ground footprint for ordnance delivery continues to expand, thus creating the need for larger airspace and ground control areas in which to safely conduct this training. The Joint Direct Attack Munition (JDAM), both live and inert, and Small Diameter Bomb (SDB), live only, have the largest footprints; therefore, they would serve as the basis for planning the target locations and airspace needed to fully support live ordnance delivery using these systems. Live and inert ordnance activities would be executed as part of both individual pilot training and joint training with other air and ground units, including MFEs. There would be an additional training benefit from ground controller participation in the operation, even if the training is for a single pilot.

For air-to-ground ordnance delivery training to be as realistic as possible, pilots must be able to use a multi-axis approach to the range target areas. This would require use of a MOA or a restricted area in which aircraft can safely maneuver and conduct ordnance delivery within a specified weapon danger zone (WDZ) footprint. [Table 2-4](#) presents the representative baseline requirements for RLOD.

Table 2-4. Realistic Live Ordnance Delivery Requirements

MDS	Ordnance	Delivery Speed	Delivery Altitude
F-22	GBU-32 (JDAM)	1.5 M	FL400 – FL500
F-22	GBU-39 (SDB)	1.5 M	FL400 – FL500
F-15E	GBU-39 (SDB)	450–550 KTAS	FL200 – FL350
F-15E	GBU-15	450–550 KTAS	1,000 feet AGL – FL350
F-15E	AGM-130	450–550 KTAS	1,000 feet AGL – FL350
F-15E/16/18	GBU-10, -12, -16, -24, -27 (LGB)	450–550 KTAS	FL200 – FL350
F-15E/16/18	GBU-31, -32, -38 (JDAM)	450–550 KTAS	FL200 – FL350

Key: AGL=above ground level; AGM=air-to-ground missile; FL=flight level; GBU=Guided Bomb Unit; JDAM=Joint Direct Attack Munition; KTAS=knots true airspeed; LGB=laser guided bomb; M=mach; MDS=mission design series; SDB=Small Diameter Bomb.

F-22 aircrews are required to drop two live and two inert bombs annually. For the purposes of this EIS’s impact assessment, the following quantities are representative of those that would be released from F-22s:

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Environmental Impact Statement***

- 200 live SDBs at 250 pounds (lb) each
- 200 JDAMs (e.g. 100 inert and 100 live) at 1,000 lb each

Key ground-based siting considerations include the location of targets within an existing restricted area large enough to contain the release point and the required WDZ for proposed weapons delivery for live and inert ordnance from the required run-in headings. For tactical relevance, target sets must be integrated into the existing Integrated Air Defense System; accordingly, for live SDB and Guided Bomb Unit (GBU)-32 ordnance, targets must be situated within existing duded or permanently bounded impact areas, while inert GBU-32 ordnance may use existing or temporary impact areas within a specified JPARC training area. The inert GBU-32 ordnance does not contain an explosive charge and consists of concrete within a metal casing, guidance fins, a battery, and a guidance kit. Temporary impact areas on Army-managed lands require Army approval. Temporary impact areas also require periodic cleanup and removal of debris from the use of inert ordnance.

This airspace would also provide for UAV access, including a loiter area clear of the run-in lines for the targets. The target set requires an approximately 2-acre site within existing JPARC training area lands already used as a live or inert ordnance impact area. The infrastructure needed for live ordnance drops would require the use of existing targets in the Oklahoma Impact Area in Donnelly Training Area (DTA), scoring, and maintenance access. Power for scoring may be provided by generators or power lines, and communications may be transmitted by microwave or fiber optic cable.

The proposed alternatives for this action were based on meeting the following requirements and selection criteria:

- The Air Force is the lead agency for this proposed action and would manage the process for expanding the airspace and ground surface area required for the restricted area in close coordination with the Army and the Cold Regions Test Center (CRTC). They would coordinate on those actions required to manage preparing, negotiating, and securing potential real property instruments required to control public access within the proposed expansion of the restricted area for this proposal, including potential special use permits, land agreements, memoranda of understanding (MOUs), easements, leases, or other conveyances with non-Department of Defense (non-DoD) land owners.
- The CRTC is the requesting agency for restricted airspace that extends or abuts R-2202, and the 354th Fighter Wing (354 FW) is the requesting agency for any restricted airspace that abuts or extends R-2211.
- CRTC will retain jurisdiction of R-2202, and scheduling/coordination of the use of that area will continue to be managed through DTA Range Control.
- As the proponent and the current restricted airspace controlling agency, both 354 FW and CRTC will coordinate responsibilities associated with this proposed action. The 354 FW and CRTC will include the Installation Range Office and the DTA Range Office during any deliberations affecting R-2202.
- The anticipated schedule for ordnance delivery training would be the same as currently exists for R-2202 use for 90 to 150 days annually at a maximum of 5 hours daily, and would include the RED FLAG–Alaska flying periods.
- The proposed expansion of existing restricted area for this proposed action would require the acquisition of new restricted airspace to the ground surface area in areas that are not currently under DoD jurisdiction, as shown on [Figure 2-3](#) for Alternative A and [Figure 2-5](#) for Alternative B. This is based on the need for DoD to have control of the airspace and ground

surface area within the expanded restricted area. The additional restricted area would also be subject to safety controls necessary to exclude nonparticipating persons and aircraft from the WDZ when ordnance delivery training is taking place in the range training area and the associated air and ground surface space are active.

- The restricted area and the adjoining MOA would require a wide range of run-in headings.
- Targets within a restricted area require an approximately 2-acre site to contain the ordnance after impact and the maximum WDZ for the representative weapons to be delivered from all release points and run-in headings.
- Targets must be located within existing duded impact areas where live ordnance use is currently permitted.
- Inert targets can be located within an existing impact area or a temporary impact area within specified JPARC training areas.
- The target site would be integrated into the Integrated Air Defense System.
- The target set would be located at a flying distance from JBER and Eielson AFB to reduce transit time and maximize training opportunities.
- The land and airspace would be available for a reasonable number of days per year so as not to conflict with competing mission or user requirements.
- Target sets would be located to minimize impacts on current noise-sensitive areas and air traffic routes.
- Target locations for live ordnance would be able to support the future deployment of the SDB Increments I and II (SDB I and II) from the required altitudes and speeds.
- Air Force MFEs would not take place in September of each year to avoid impacts on hunting seasons in DTA.

2.1.2.1.1 Alternative A (Preferred Alternative)

Alternative A alternative was selected as the Preferred Alternative because it provides the Air Force with the capability to drop ordnance from fifth-generation fighter aircraft from realistic delivery profiles with the addition of mitigations to avoid and minimize land use and access impacts. This alternative would enable the use of live and inert ordnance for RLOD training and exercises.

The live ordnance component proposes the use of the existing targets in an existing duded impact area in the Oklahoma Impact Area within R-2202. This would require the expansion of the R-2202 restricted area to the west of DTA to include the use of non-military land, to encompass the airspace and underlying lands required for the larger GBU-32 and SDB footprints.

The inert component of Alternative A proposes to establish (1) a temporary impact area and target in northwest DTA in Training Area (TA) 544 for new run-in headings, release points, and hazard zones from JBER to the south and (2) a temporary impact area and target in southeast DTA in TA 533 for new run-in headings, release points, and hazard zones from Eielson AFB to the north, as shown in [Figure 2-4](#). The proposed new targets would not, however, be located within an existing DTA impact area, but would provide for RLOD training with only inert GBU-32 ordnance while staying within the existing R-2202 restricted area in DTA. Targets, such as CONEX boxes, would be within a flying distance from JBER and Eielson AFB, so as to reduce transit time, reduce aircraft fuel use, and maximize training opportunities.

AIRSPACE STRUCTURE

The current configuration and altitude stratification for R-2202 A, B, C, and D are as described in [Table 2-5](#) and shown in [Figure 2-3](#). R-2202 extends from the surface over controlled lands to an unlimited ceiling (R-2202 D). As noted, the area is subdivided such that each segment can be activated, as needed, to support the altitudes required for the different training activities and ordnance deliveries. This alternative proposes that the existing R-2202 be expanded to the west, as shown in [Figure 2-3](#), to encompass the weapons footprints and altitudes up to the unlimited ceiling of R-2202 D. The altitudes needed for RLOD would depend on specific requirements for the ordnance and aircraft types and the delivery profiles reflected in [Table 2-4](#). The proposed expansion would provide the optimum additional restricted airspace necessary to accommodate the safety footprints of the ordnance destined for use within the Oklahoma Impact Area.

Table 2-5. Description and Representative Baseline Annual Use

Airspace Designation	Altitudes	Total Annual Sorties	Annual Days/Hours of Use	Controlling/Scheduling Agency
R-2202 A	Surface up to but not including 10,000 feet MSL	3,489	265/2,974	FAA, Anchorage ARTCC, USARAK, CRTC, Donnelly Training Area
R-2202 B	Surface up to but not including 10,000 feet MSL	3,489	263/2,861	
R-2202 C	10,000 feet MSL – FL310	3,489	226/2,316	
R-2202 D	Above FL310, ceiling unlimited	3,489	224/2,311	
R-2211	Surface to FL310	1,637	170/410	FAA; Fairbanks Approach Control; Air Force, 354th Fighter Wing, Eielson Air Force Base
Eielson MOA	100 feet AGL up to but not including FL180	7,042	215/688	FAA; Fairbanks Approach Control; Air Force, 354th Fighter Wing, Eielson Air Force Base

Key: AGL=above ground level; ARTCC=Air Route Traffic Control Center; CRTC=Cold Regions Test Center; FAA=Federal Aviation Administration; FL=flight level; MOA=Military Operations Area; MSL=mean sea level; USARAK=U.S. Army Alaska.

AIRSPACE USE

R-2202 is currently used by fighter, bomber, and helicopter aircraft for training in CAS, air-to-ground aerial gunnery, bombing, unmanned aerial reconnaissance, and air-to-air combat. R-2202 is also used to support small arms training; direct and indirect fires; air-to-surface/surface-to-surface laser operations; explosive ordnance disposal; mortars; tube-launched, optically-tracked, wire-command data link, guided missiles (TOWs); artillery; parachute operations; assault landings; and unmanned aircraft system (UAS) reconnaissance and surveillance. [Table 2-5](#) includes a description and data on the representative baseline use of this restricted area. Projected use of this airspace for RLOD may include all types of fighter aircraft. Currently, the F-22 is the only aircraft using GBU-32s, while the F-15E is the only aircraft currently using SDBs. F-22 pilots are required to drop two live and two inert bombs annually. Eventually, most fighter-type aircraft will be using this ordnance for both local unit training and MFEs.

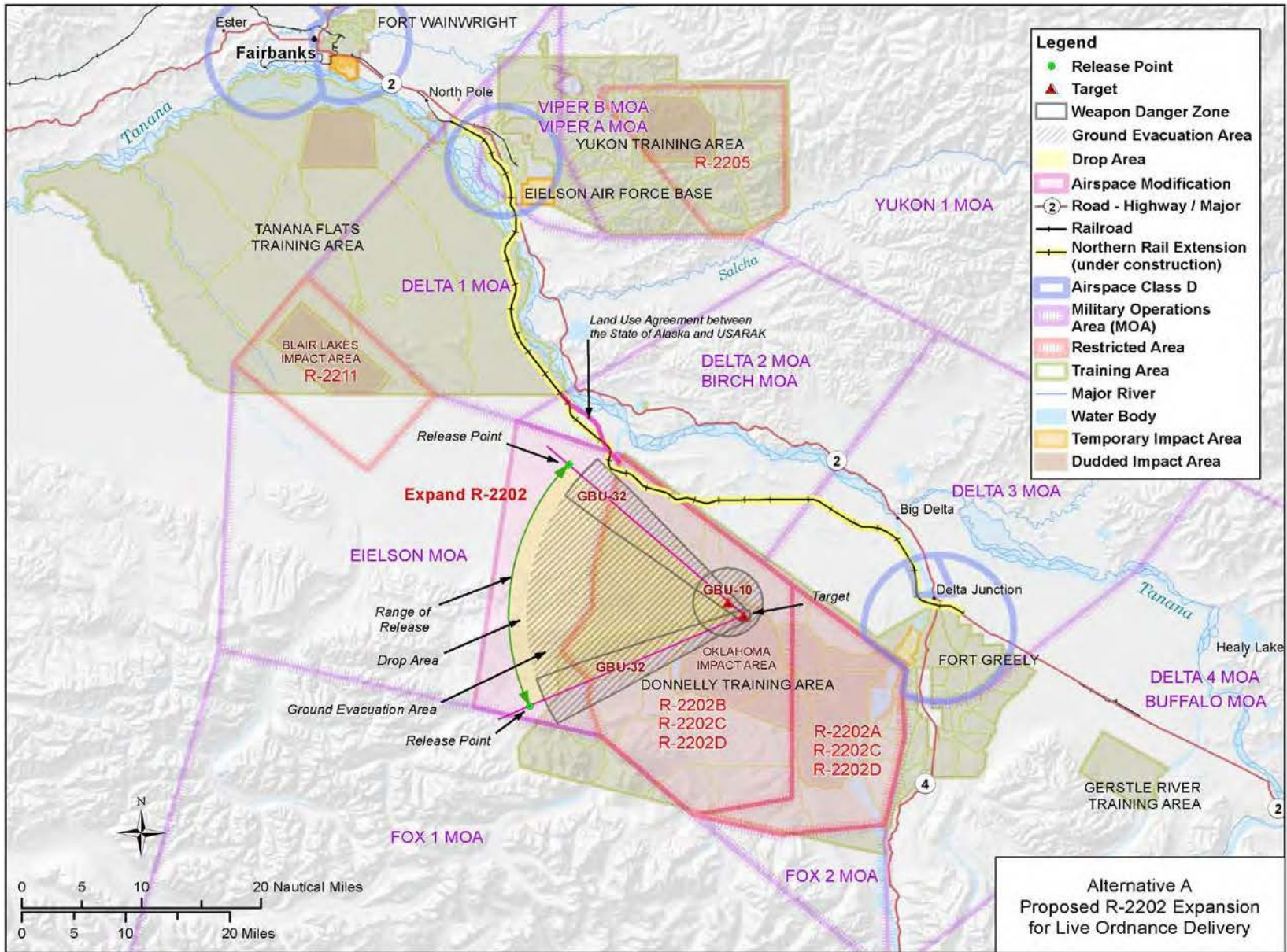


Figure 2-3. Alternative A Proposed R-2202 Expansion for Live Ordnance Delivery

A majority of the annual sortie-operations in R-2202 were conducted by fighter aircraft, with the F-22 and F-15E accounting for 70 and 506 operations, respectively. Of the ordnance types listed in [Table 2-4](#), 149 live deliveries were made from R-2202 during fiscal year 2009. These figures constitute a general estimate of the number of live GBU-32 and SDB deliveries likely to occur within the expanded restricted area proposed under this proposed action. The proposed airspace is scheduled for use Monday through Friday, 7:00 a.m. to 6:00 p.m., with other times stipulated by NOTAM. These activities would be conducted up to 170 days annually, with a maximum duration of 4 to 5 hours daily, depending on mission requirements.

The airspace for inert ordnance would be used in the same manner as with live ordnance, with the key exception that only inert ordnance such as GBU-32 would be dropped on the proposed new targets in TA 544 for south run-ins and in TA 533 for north run-ins.

It is noted also that supersonic flight operations would not be permitted in the expanded area of R-2202 at altitudes at which supersonic operations are not already permitted. Currently fighter aircraft are allowed to fly supersonic speeds at altitudes greater than FL300 without a special waiver. As a result, there is no proposed change from current operations.

GROUND-BASED USE

The existing targets in the northwest area of the Oklahoma Impact Area would be used for the proposed action, and the underlying land would be used as a hazard area in support of the western expansion of R-2202 for the WDZs. Due to the hazardous nature of ordnance delivery, the ground evacuation area shown in [Figure 2-3](#) will need to be free of all personnel not participating in military operations.

For the proposed north-south run-in headings targets would be located within DTA-West. The inert component requires the use of proposed new target areas in DTA TA 544 and in DTA TA 533 for inert GBU-32 ordnance delivery. The proposed new targets in TAs 544 and 533 would be classified as temporary impact areas and approximately 1 to 2 acres in size. They would not be located within the boundaries of any existing DTA impact area, given the requirements to meet RLOD GBU-32 run-in and release point requirements to remain within the existing R-2202 boundaries.

Final siting of targets would be according to established procedures used by U.S. Army Alaska (USARAK) and the U.S. Army Garrison Fort Wainwright, Alaska (USAG-FWA) Environmental Division working with the Air Force to select a suitable location while also considering a range of environmental, operations, and land use constraints. The process would employ siting criteria identified in [Section 3.2.8.4](#) to minimize impacts on wildlife and vegetation as well as appropriate National Environmental Policy Act (NEPA) review and documentation.

2.1.2.1.2 Alternative B

Alternative B is basically an expansion of Alternative A. Alternative B adds the use of the Blair Lakes Impact Area in R-2211 of the Tanana Flats Training Area (TFTA) to the northwest of R-2202 of the DTA. The Blair Lakes Impact Area would provide for the use of inert ordnance only, given its current use by the Air Force, as well as its current configuration and hazard zone safety requirements. The use of both DTA and TFTA would provide the Air Force with the maximum capability and capacity to conduct RLOD training and exercises for Air Force fifth-generation fighters.

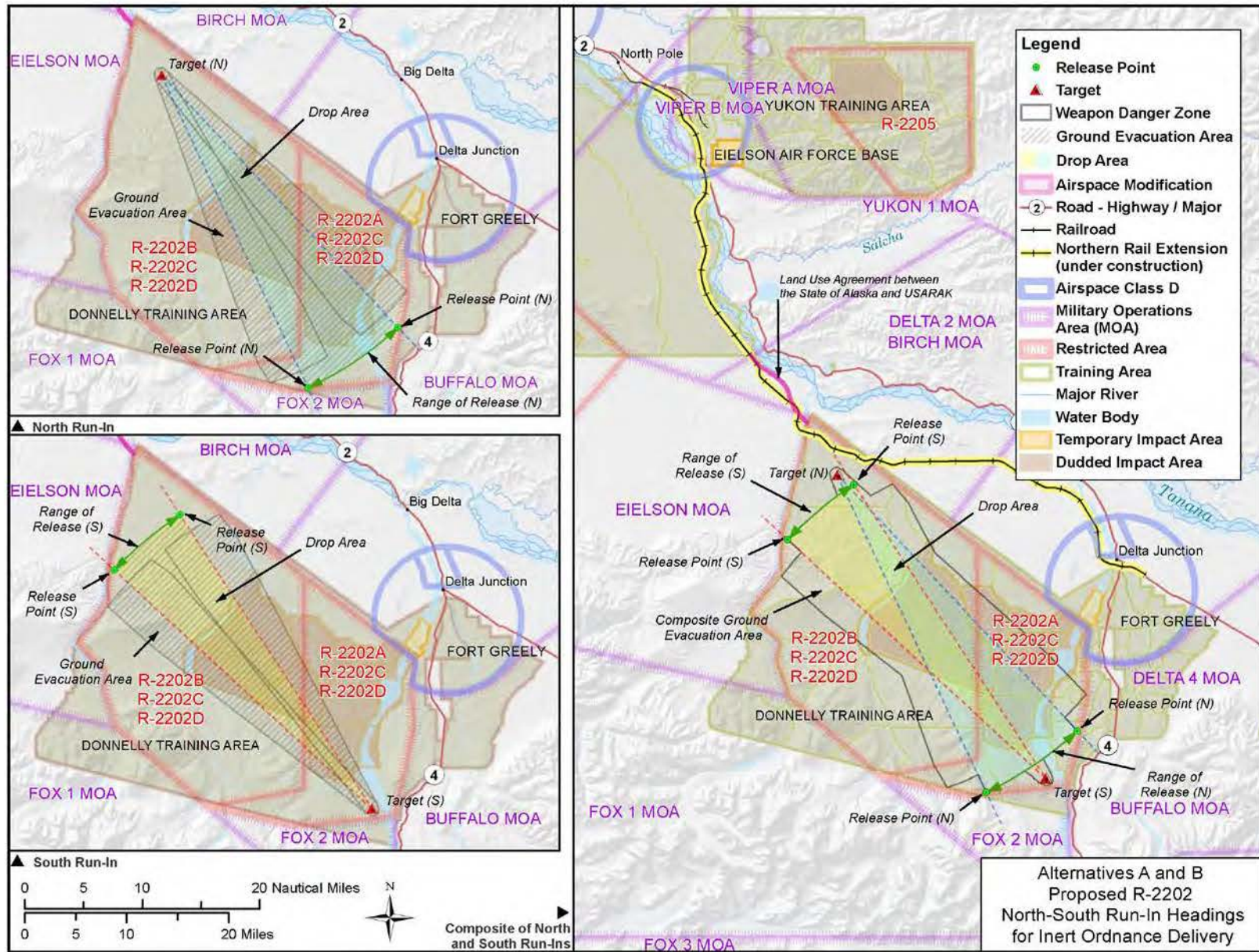


Figure 2-4. Alternatives A and B Proposed R-2202 North-South Run-In Headings for Inert Ordnance Delivery

AIRSPACE STRUCTURE

Under this alternative, live ordnance delivery would be conducted on existing targets in the Oklahoma Impact Area, and inert ordnance delivery would be conducted in the Blair Lakes Impact Area, requiring a proposed new restricted area linking R-2211 and R-2202. This proposed configuration is depicted in [Figure 2-5](#). An unlimited ceiling altitude is proposed for the linking restricted area, as this is necessary to support deliveries of the higher-profile live-fire ordnance listed in [Table 2-4](#).

AIRSPACE USE

The description and use of R-2202 are as discussed for Alternative A and shown in [Figure 2-5](#). Training activities are currently conducted in R-2211 by fighter, bomber, helicopter, and cargo aircraft and include air-to-ground aerial gunnery, bombing, air combat training, basic fighter maneuvers, air combat maneuvers, intercept training, low-altitude air-to-air training, low-altitude step-down training, and simulated low-altitude surface attack tactics. Representative figures on the annual baseline use of R-2211 are listed in [Table 2-5](#).

Use of this airspace for RLOD with GBU-32 ordnance could be bidirectional, involving use of the Oklahoma Impact Area for live and inert ordnance delivery and the Blair Lakes Impact Area for inert ordnance delivery. The use of SDBs, which is only a live ordnance type, can only be dropped in the duded area of the Oklahoma Impact Area, as noted under Alternative A.

As discussed under Alternative A, based on current use of R-2202 for live GBU-type ordnance, it is estimated that live deliveries of GBU-32 and SDB-type ordnance could be up to 400 deliveries annually by the different aircraft types conducting these training exercises. Formal R-2211 Air Force utilization reports for fiscal years 2009 and 2010 indicate that no inert GBU-32 ordnance was used on the Blair Lakes Impact Area, given the lack of restricted area required to drop GBU-32 ordnance.

GROUND-BASED USE

Ground-based use would be the same as Alternative A with the addition of the Blair Lakes Impact Area targets for inert ordnance delivery. Due to the hazardous nature of ordnance delivery for both live and inert rounds, the ground access restriction area shown in [Figure 2-5](#) would need to be free of all personnel not participating in military operations.

2.1.2.2 No Action Alternative

The No Action Alternative would involve not expanding the footprint, associated WDZ, and hazard areas for ordnance delivery or the use of ordnance requiring an expanded footprint, such as the SDB, which is a critical element of the proposed JPARC full-spectrum and air-ground domain training requirements.

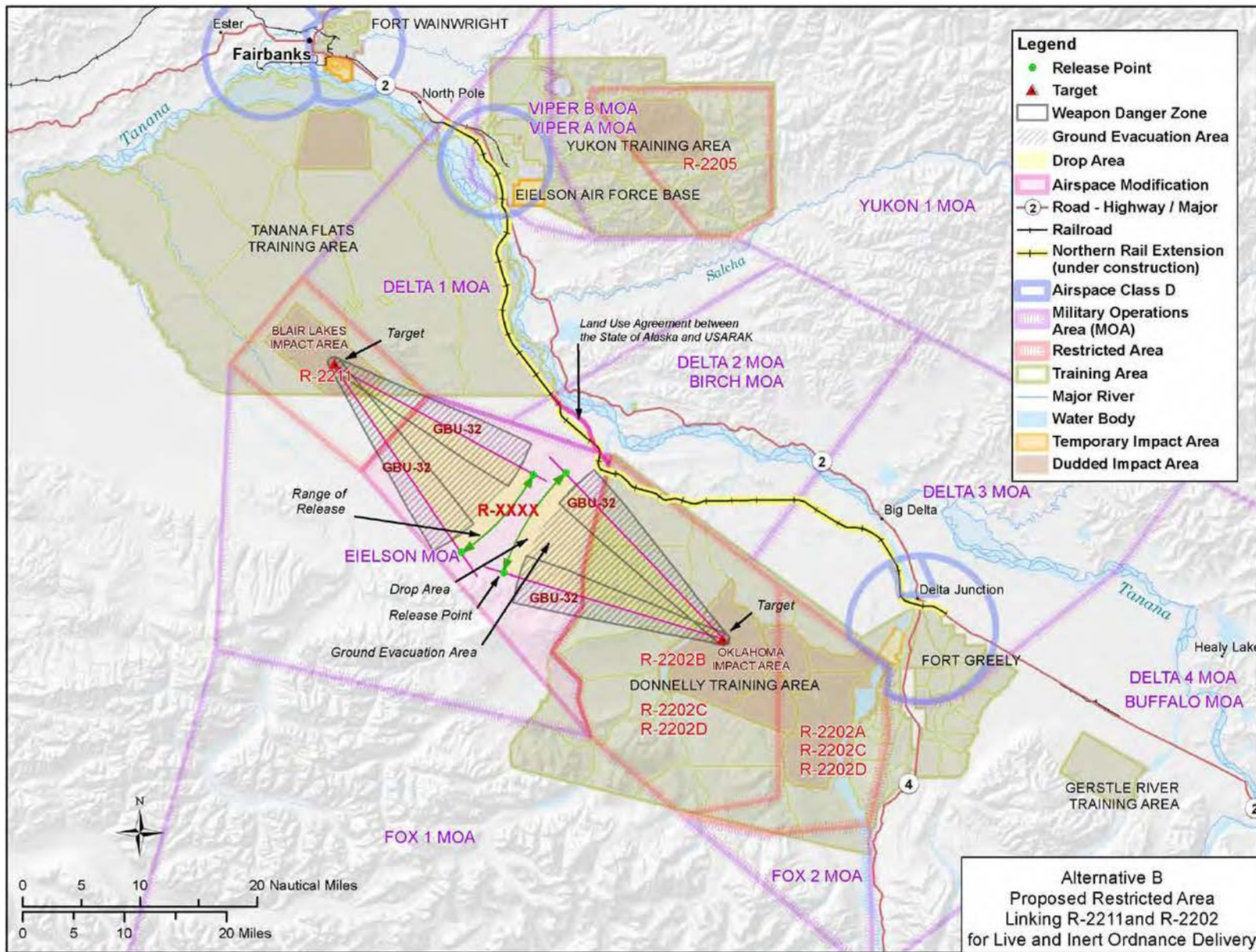


Figure 2-5. Alternative B Proposed Restricted Area Linking R-2211 and R-2202 for Live and Inert Ordnance

2.1.2.3 Alternatives Considered But Not Carried Forward

The following alternatives were examined during the master planning and scoping process but were not carried forward for further consideration because they did not adequately meet the selection and requirements criteria listed in Section [2.1.2.1](#):

- Establish weapons corridors through the Eielson MOA and overlying ATCAA to provide two protective pathways for live ordnance use within the Oklahoma Impact Area. This alternative would have required the designation of a special airspace where operations and air traffic rules would have to be authorized and prescribed by the FAA.
- Establish a new target area north of the Oklahoma Impact Area outside DTA for GBU-32 approaches within TA 546, and use existing targets in the Oklahoma Impact Area for all other ordnance. This would require new impact areas and would not support a SDB.
- Use existing targets in the Yukon Training Area (YTA) and expand R-2205 eastward and adjust the floor altitude. This alternative would provide limited run-in headings because of public and private lands within this area.

2.1.3 Battle Area Complex Restricted Area Addition

2.1.3.1 Proposed Action

The Army's proposed action alternatives propose that a new restricted area be established over the BAX area within DTA-East. This airspace is proposed to be of sufficient area to encompass hazardous activities and weapons footprints for those types of munitions and ordnance to be used in this area. To fully support more realistic joint training at the BAX, the action alternative requires additional restricted area.

The BAX is used to train and test the Stryker Brigade Combat Team (SBCT) and infantry brigade combat team (IBCT) crews, sections, platoons, companies, and dismounted infantry squads on the skills necessary to detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical arrangement in both open and urban terrain environments. This complex also supports tactical live-fire operations independently of, or simultaneously with, supporting vehicles in free maneuver. Company Combined Arms Live-Fire Exercises (CALFEX) may also be conducted on this facility. This complex accommodates training with subcaliber and/or training devices. A Convoy Live Fire route would be included, with the use of qualification/tactical trails.

The Combined Arms Collective Training Facility (CACTF) is a training facility designed to conduct multiple unit, full-spectrum operations (FSO) training up to battalion task force levels. The CACTF is a critical component of the proposed action, as it replicates an urban environment, and the facility consists of urban sprawl, which includes buildings, roads, alleys, parking areas, underground sewers, parks, athletic fields, and a command and control building. The CACTF is designed to support heavy and light infantry, armor, artillery, and aviation positioning and maneuver. The CACTF accommodates force-on-force (FOF) and force-on-target (FOT) training. Units can use enablers such as UAVs for surveillance or helicopter support for air assault operations (repelling out of a helicopter). This training is invaluable to deploying Soldiers by creating similar conditions found in hostile urban environments. CACTF home station training allows Soldiers to conduct important after-action reviews (AARs) to identify what went right and what needs correction, thus increasing survivability.

2.0 – Description of Proposed Action and Alternatives
2.1 Definitive Actions Evaluated in this EIS

In accordance with Army Technical Circular 25-8, Training Ranges, May 2010, the Army-wide standard for range availability is 242 days. This number is determined by subtracting all weekends (104 days) and Federal holidays (10 days)—to include an additional 9 days for range maintenance/inclement weather. Training schedules for tenant and regional units will impact range availability and must be considered by range managers. The following tables prepared by USARAK provide information on units, unit activity levels, and unit echelons to be used to achieve BAX and CACTF training requirements. It is noted that this information would be the same as or similar to that to be used for the Expansion of Restricted Area R-2205 in Section 2.1.4 below.

Table 2-6. Minimum Number of Days Required to Train USARAK Units to Standard on a Battle Area Complex

Military Units	Number of Companies	×	Number of Training Iterations per Company	×	Hours per Training Iteration	÷	Hours of Range Availability per Day	=	Total Days
172 nd Infantry SBCT	13	×	8	×	8	÷	16	=	52
4-25 th ABCT	11	×	8	×	8	÷	16	=	44
Number of Days Required for Retraining Opportunities ¹									10
Minimum Number of Days Required to Train USARAK Units to Standard on a BAX									106

¹ An additional 10 percent of the total training days required for each unit is added to the total to account for retraining requirements necessitated by unsuccessful training events.

Key: ABCT=Airborne Brigade Combat Team; BAX=Battle Area Complex; SBCT=Stryker Brigade Combat Team; USARAK=U.S. Army Alaska.

Actual utilization of the CACTF is expected to be similar to the BAX. Units would likely use the CACTF when they are training at the BAX in order to efficiently expend funding and equipment for training. However, unforeseen adjustments to the number of utilization days to accommodate training requirements may still occur at the CACTF.

Table 2-7. Maximum Number of Battle Area Complex Utilization Days

Military Units	Number of Units	×	Number of Training Iterations per Unit	×	Hours per Training Iteration	÷	Hours of Range Availability per Day	=	Total Days
172 nd Infantry SBCT Company	13	×	8	×	8	÷	16	=	52
4-25 th ABCT Company	11	×	8	×	8	÷	16	=	44
Alaska Army National Guard Company	9	×	8	×	8	÷	16	=	36
172 nd Infantry SBCT Cavalry Section	24	×	16	×	2	÷	16	=	48
4-25 th ABCT Cavalry Section	18	×	16	×	2	÷	16	=	36
Number of Days Required for Retraining Opportunities ¹									22
Maximum Number of BAX Utilization Days									238

¹ An additional 10 percent of the total training days required for each unit is added to the total to account for retraining requirements necessitated by unsuccessful training events.

Key: ABCT=Airborne Brigade Combat Team; BAX=Battle Area Complex; SBCT=Stryker Brigade Combat Team.

Table 2-8. Unit Levels by Frequency of Use

Echelon	Frequency of Use
Brigade	Annual
Battalion	Semi-Annual
Company	Quarterly
Platoon	Quarterly
Squad	Quarterly
Individual	Quarterly

A typical training event would last for 15 days. The actual 15-day event consists of 10 actual on-the-range training days, beginning and ending with 2 days of travel and preparation. An additional day is typically added in the middle of the training event to allow the unit to reset for further training operations. A typical training day is 16 hours. This training day consists of both daytime and nighttime operations. Unit commanders have the authority to train and deploy in smaller-sized elements dependent on training objectives to be met.

2.1.3.1.1 Alternative A

Under Alternative A, a new restricted area would be established over the BAX and the CACTF in DTA-East to provide the protective airspace required for hazardous flight activities and ordnance use in this training environment. The size and configuration of this proposed restricted airspace must be of sufficient dimensions to encompass these hazardous activities and the weapons footprints for those types of ordnance to be used within this area. The restricted area proposed under this action alternative would support the need for more realistic joint training at the BAX.

The proposed action would allow the expansion of ordnance usage up to and including 155-millimeter (mm) howitzer inert rounds. These operations may be conducted in another impact area while being controlled from the BAX.

The restricted area must be of sufficient size over the BAX to accommodate the hazardous air and ground activities and weapons safety footprints required for training with the munitions and ordnance types listed in [Table 2-9](#). All munitions are planned to be inert. It is noted that these requirements are also applicable to the proposed action to expand R-2205 to include the DMPTR, as described in Section [2.1.4](#).

The munitions systems for CACTF, which involve Battalion Level Operations, include the following:

- Demolitions Charges (structure entry cratering charges)
- Helicopters: All types for Intelligence Surveillance Reconnaissance (ISR), Air Assault, and Resupply Operations (no weapon systems used)
- UAVs: Use of ISR Sensors and Laser Designator/Range Finder and Laser Pointer Capabilities
- CAS: Use of ISR Sensor and Laser Capabilities

Creation of the BAX Restricted Area Addition involved consideration of the following criteria and siting requirements:

- The BAX restricted area would be scheduled for use 12 hours per day, Monday through Friday, or as otherwise stipulated by NOTAM, to support training requirements. This would include night hours, as needed, to support training requirements of all units in Alaska.

Table 2-9. Battle Area Complex (Company Level Operations) Munitions Systems

Stryker	Small Arms	Aircraft	Indirect Fire
.50 cal MG 105-mm MGS TOW-2B	40-mm TPT	.50 cal MG Kiowa 2.75-inch Practice Rocket	60 mm Mortar-FRTR 81 mm Mortar-FRTR
	5.56 mm Firearms	CAS: 30mm and below; use of ISR Sensor and Laser Capabilities	120 mm Mortar-FRTR
	7.62 mm Firearms	Hellfire Laser Carry Trainer	105 mm Howitzer-IR
	.50 cal MG	UAVs: Use of ISR Sensors and Laser Designator/ Range Finder and Laser Pointer Capabilities	155 mm Howitzer-IR

Key: cal=caliber; CAS=Close Air Support; FRTR=Full Range Training Round; IR=Illumination Round; ISR=Intelligence Surveillance Reconnaissance; MG=machine gun; MGS=mobile gun system; mm=millimeter; TOW=tube-launched, optically-tracked, wire-command data link, guided missile; TPT=target practice tracer.

- The restricted area and WDZs must be large enough to encompass the BAX.
- The airspace structure would need to allow simultaneous operations for combined arms while allowing sufficient clearance for aircraft to operate within the visual flight rules (VFR) corridors and regularly used flight patterns while also remaining clear of the BAX restricted area, when it is active.
- Impacts on current IFR departure and arrival routes and other air corridors must be minimized.
- The restricted area would be split vertically below the Minimum Obstacle Clearance Altitude (MOCA) of the existing Victor route IFR corridor in the vicinity of the BAX.
- The land must be large enough to support the maneuver of a Stryker company in the attack and have access routes to the start-fire line.
- The restricted area must include access for UAVs and armed helicopters.
- Only non-dud-producing munitions will be fired in the BAX/CACTF, so that no new duded (permanent) impact areas would need to be created.
- Coordination with Fort Greely and the Space and Missile Defense Command will be undertaken regarding the proposed restricted airspace and deconfliction of the use of existing Class D airspace close to the BAX.

AIRSPACE STRUCTURE

The airspace structure proposed for the action alternative is to essentially convert the area currently established as the BAX Controlled Firing Area (CFA) to a restricted area, as depicted in [Figure 2-6](#). A CFA is a type of SUA that is established to contain activities that could be hazardous to nonparticipating aircraft if they are not conducted in a controlled environment. CFAs are not charted on aeronautical maps because they do not cause a nonparticipating aircraft to change its flight path, but activities must be suspended if such aircraft are observed approaching CFAs.

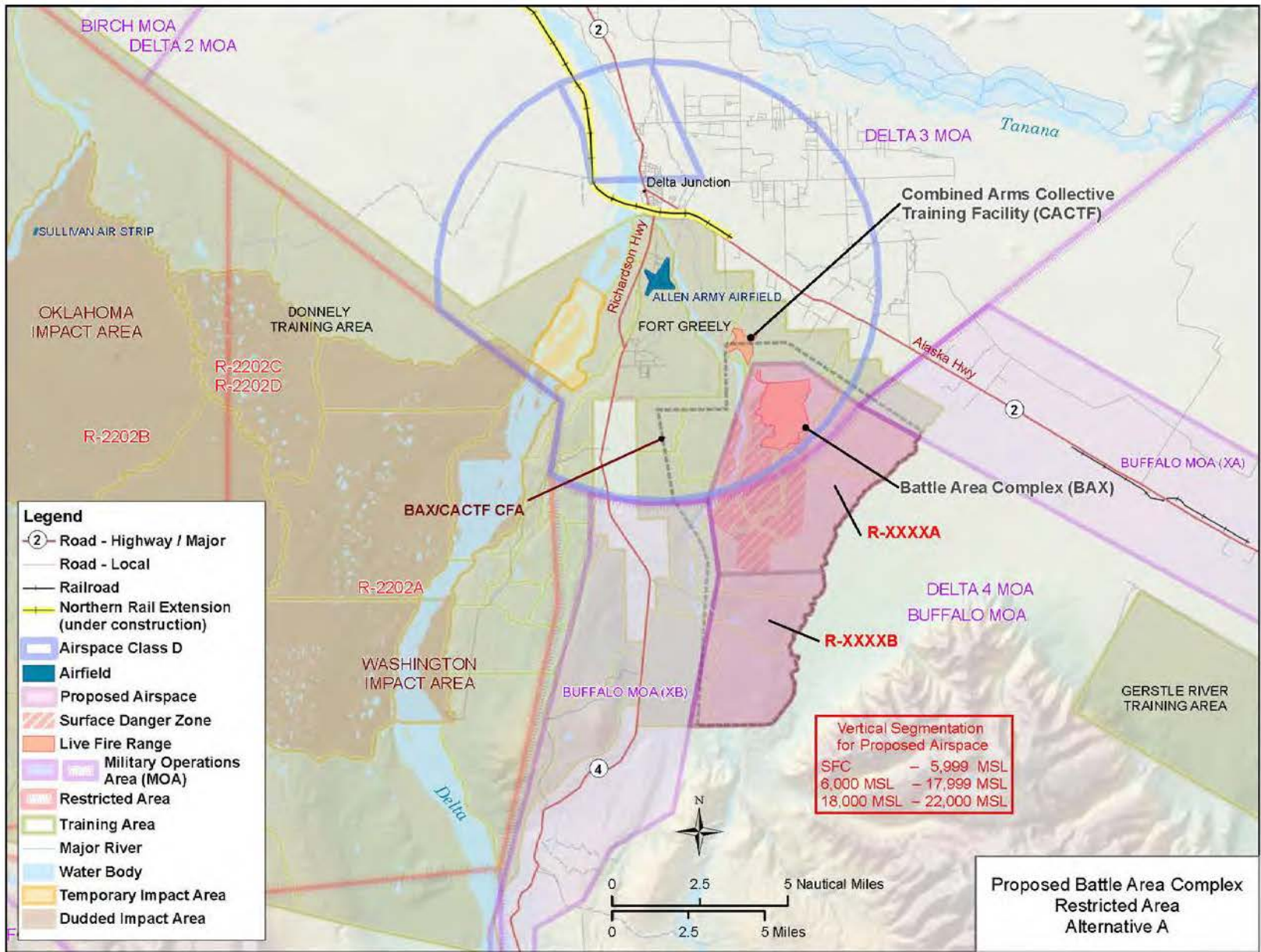


Figure 2-6. Proposed Battle Area Complex Restricted Area Alternative A

While there are other SUA areas in Alaska where such activities may be conducted, they do not provide the same training venue as the BAX. The land mass of R-2202 does not provide the free maneuver or target opportunities that are present in the BAX footprint. The proposed restricted area would provide the protective airspace required for hazardous activities that are not currently authorized under the rules that govern a CFA.

The proposed BAX restricted area would be established as R-XXXXA (north) and R-XXXXB south as shown in [Figure 2-6](#). Both subdivisions would be stratified in three layers: from the surface up to but not including 6,000 feet MSL; 6,000 feet MSL up to but not including 18,000 feet MSL; and 18,000 feet MSL up to 22,000 feet MSL (FL220). However, BAX activities would occur in the lower-altitude layer (below 6,000 feet MSL) approximately 60 percent of the training year with use of the higher altitudes (up to FL220) being included approximately 40 percent of the training year.

AIRSPACE USE

The estimated use of R-XXXX A and B would be 12 hours per training day from 7:00 a.m. to 7:00 p.m. local time, Monday through Friday, and other times as required and stipulated by NOTAM to support the Joint Combined Arms Live Fire (JCALF) activities. [Table 2-10](#) and [Table 2-11](#) provide information regarding training frequency and capability requirements, respectively, for the proposed restricted area. The potential annual use of the BAX and the associated airspace would range from approximately 106 to 238 days. Information regarding the scheduled use of the proposed restricted area subdivisions would be made available through the SUAIS.

Table 2-10. Battle Area Complex/Combined Arms Collective Training Facility Projected Annual Use

Type of Training	Annual Number of Days
Battle Area Complex	98
Combined Arms Collective Training Facility	140
Air-ground Integration Training	64
Aerial Gunnery	90

Table 2-11. Battle Area Complex/Combined Arms Collective Training Facility and Digital Multi-Purpose Training Range Proposed Capabilities

A-10 30 mm and below	UAV Operations
F-16 20 mm and below	Joint, combined arms LFE
AH64 30 mm and below	Air-ground integration
All platforms .50 cal and below	Gunnery collective skills training
2.75-inch Practice Rocket	Precision-guided inert munitions
60-, 81-, 120-mm mortars	Hellfire Laser Carry Trainer
Indirect fire 105 mm, 155 mm	
Laser Operations	

Key: cal=caliber; LFE=live-fire exercise; mm=millimeter; UAV=unmanned aerial vehicle.

(Note that the requirements in [Table 2-11](#) are also applicable to the proposed action to expand R-2205 to include the DMPTR, as described in Section [2.1.4](#).)

2.1.3.1.2 Alternative B (Preferred Alternative)

The proposed restricted area over the BAX and CACTF in DTA-East under this alternative would extend beyond the boundaries proposed for Alternative A in order to encompass the BAX and CACTF boundaries. This alternative was selected as the Preferred Alternative because it would provide the Army with additional restricted area expansion to meet both current and future needs for the expansion of the proposed new firing points, the protective surface danger zones (SDZs), range training impact areas, and targets required for this proposed action ([Figure 2-7](#)).

[Table 2-12](#) provides specific detail regarding the locations of the new firing points and the SDZs in accordance with each of the weapon systems to be employed for the training exercises to be undertaken within the proposed restricted area of the BAX and CACTF.

Table 2-12. New Firing Points to Targets by Weapon Systems

System	Firing Points	Target Points												
		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13
Weapon Caliber: 60mm:Full Range Practice M769 (Ctg)	F1	x	x	x	x									
Weapon Caliber: 60mm:Full Range Practice M769 (Ctg)	F2	x	x	x	x									
Weapon Caliber: 81mm:FRTR M879	F2	x	x	x	x									
Weapon Caliber: 81mm:FRTR M879	F1	x	x	x	x									
Weapon Caliber: 105mm:Illum M314	F3					x	x	x	x					
Weapon Caliber: 120mm:Full Range Practice XM931	F1	x	x	x	x									
Weapon Caliber: 120mm:Full Range Practice XM931	F2	x	x	x	x									
Weapon Caliber: 155mm:PROJ ilium	F4									x	x	x	x	
A10 2.75														x
A10 30mm														x
AH64 2.75														x
F16 2.75														x
F1620mm														x

AIRSPACE STRUCTURE

The proposed BAX restricted area under this alternative would be subdivided into three sectors: R-XXXXA (north), R-XXXXB (center), and R-XXXXC (south), as shown in [Figure 2-7](#). These subdivisions would be stratified in three layers: from the surface up to but not including 6,000 feet MSL; 6,000 feet MSL up to but not including 15,000 feet MSL; and 15,000 feet MSL up to 22,000 feet MSL (FL220) with most BAX activities being conducted in the lower strata approximately 60 percent of the training year as shown in [Figure 2-8](#).

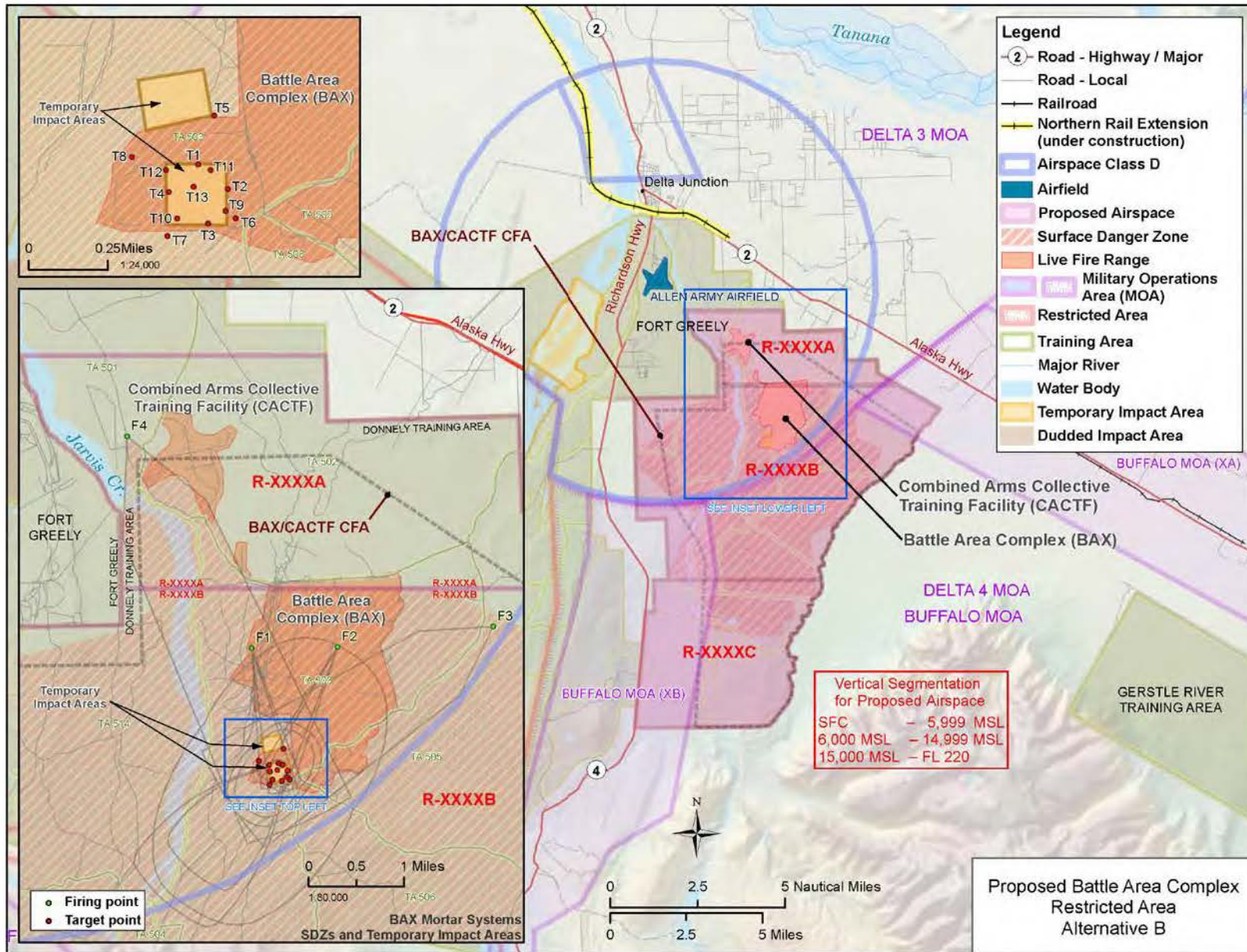


Figure 2-7. Proposed Battle Area Complex Restricted Area Alternative B

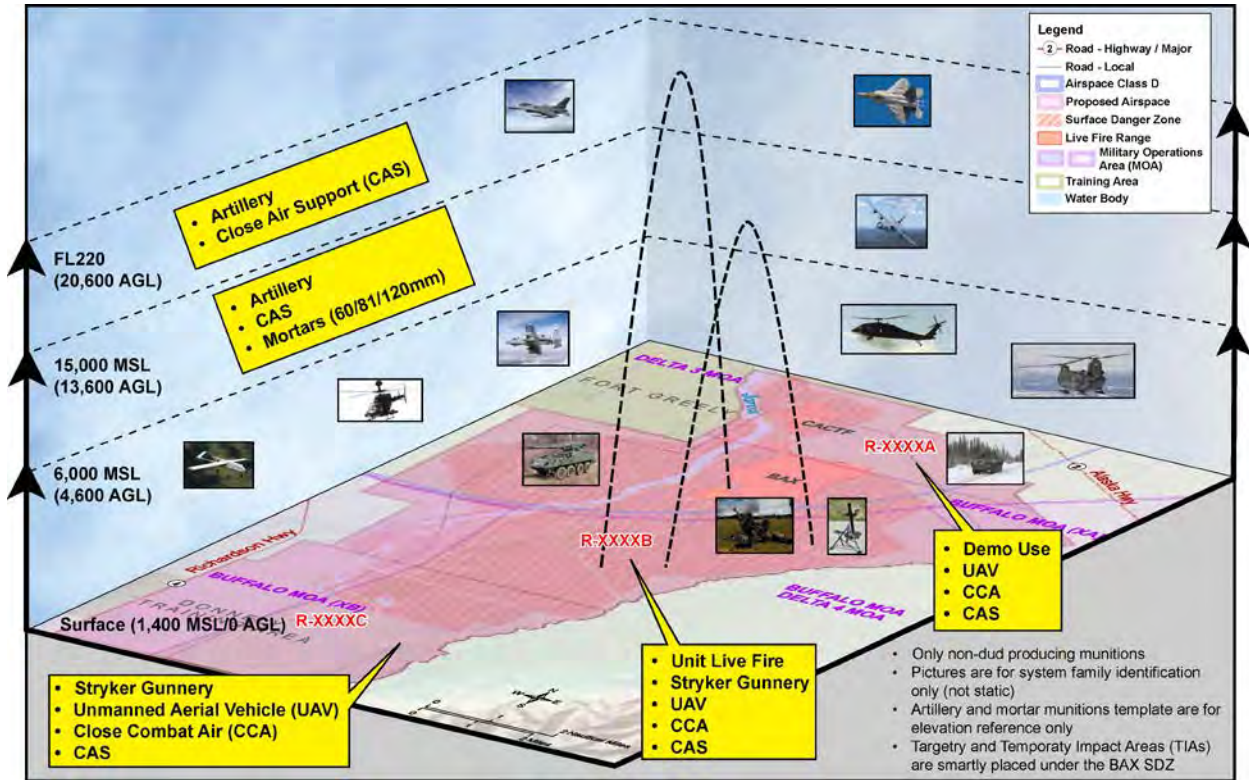


Figure 2-8. Battle Area Complex Vertical Segmentation

AIRCRAFT USE

The estimated use of R-XXXX A, B, and C would be 12 hours per training day up to approximately 238 days over the same daily timeframes described for Alternative A. Training frequencies and capability requirements within the restricted area would also be the same as outlined in [Table 2-10](#) and [Table 2-11](#). The scheduled use of the different sectors (A, B, and C) and altitudes layers needed to support individual BAX missions activities would be made available through the SUAIS.

2.1.3.2 No Action Alternative

Under the No Action Alternative, the existing CFA would remain in place without establishing any restricted area over the BAX in DTA-East. The lack of this capability involving the BAX would preclude realistic Joint, Interagency, Intergovernmental, and Multinational (JIIM) training with other forces critical to the JPARC vision, goals, and future concept of operations.

2.1.3.3 Alternatives Considered But Not Carried Forward

It has been determined that no other courses of action could provide for the required levels of JCALF training achievable through expansion of a restricted area over the BAX.

2.1.4 Expansion of Restricted Area R-2205

2.1.4.1 Proposed Action (Preferred Alternative)

Under the proposed action restricted area R-2205 would be expanded to include the Moose Creek Range Complex (also referred to as the DMPTR) area within the YTA, as well as the airspace currently designated as the CALFEX north and south CFAs which overlie the YTA and are used for small-arms

firing, artillery, ground-launched antitank guided missiles, and mortars. This airspace would be of sufficient area to encompass hazardous activities and weapons footprints for the types of ordnance proposed for use in this area. The action alternative requires expansion of the current R-2205 over the DMPTR and most of YTA to provide for a significant increase in more-realistic training in this important training area, thus providing more-effective support of joint training initiatives.

The proposed action was selected as the Preferred Alternative because it best provides the Army with an area of sufficient size to encompass hazardous activities, increase more-realistic training, and better support joint training initiatives.

The proposed restricted area would provide loitering airspace for helicopters and UAVs within controlled airspace in conjunction with training activities being conducted within the range impact areas. UAVs would be integrated into JCALF training from an adjacent airfield. UAVs currently can be operated from the Firebird Landing Zone and Husky Drop Zone (DZ). Airspace being proposed for the transit of UAVs from different locations to the restricted areas is addressed in Section 2.1.6. The restricted area and SDZs must be large enough to encompass the DMPTR.

The expansion of R-2205 involved consideration of similar criteria and siting requirements for the BAX restricted area addition discussed in Section 2.1.3. Important criteria for this proposed action is the anticipated savings on travel, fuel, energy, billeting, logistics, and similar costs due to YTA's proximity to Fort Wainwright and Eielson AFB, as noted above.

AIRSPACE STRUCTURE

The R-2205 restricted area and subdivisions proposed for this proposed action are as depicted in [Figure 2-9](#). The action aligns the outer restricted area boundary more precisely with the Army-controlled YTA lands to provide the expanded protective airspace needed for encompassing YTA hazardous activities. The proposed R-2205C extends within the Eielson AFB Class D airspace; therefore, the scheduled use of this subdivision would be closely coordinated among the different controlling and scheduling functions so that R-2205C activities do not conflict with Eielson air traffic operations. This restricted airspace would extend from the surface up to FL310 with only those subdivisions and altitudes being activated as needed to support individual UAV and other mission requirements.

AIRSPACE USE

The capabilities to be performed with the support of the expanded airspace within R-2205 would include the same ones shown in both [Table 2-9](#) and [Table 2-11](#) for the BAX/CACTF use. Projected use of the proposed R-2205 restricted area would be as described in [Table 2-13](#). The USARAK Range Management Plan indicates an annual range use requirement for this range of 212 days, but future JJIM utilization plans would increase the annual use up to 300 days. Restricted area segment D, as shown in [Figure 2-9](#), would be used primarily for UAV operations. Initial UAV hovering points at Husky, Firebird, B/C Batteries, DMPTR, and firing points would be contained within R-2205.

Table 2-13. Digital Multi-Purpose Training Range Projected Annual Use

Type of Training	Annual Number of Days
Digital Multi-Purpose Training Range	142
Air-Ground Integration Training	64
Aerial Gunnery	90

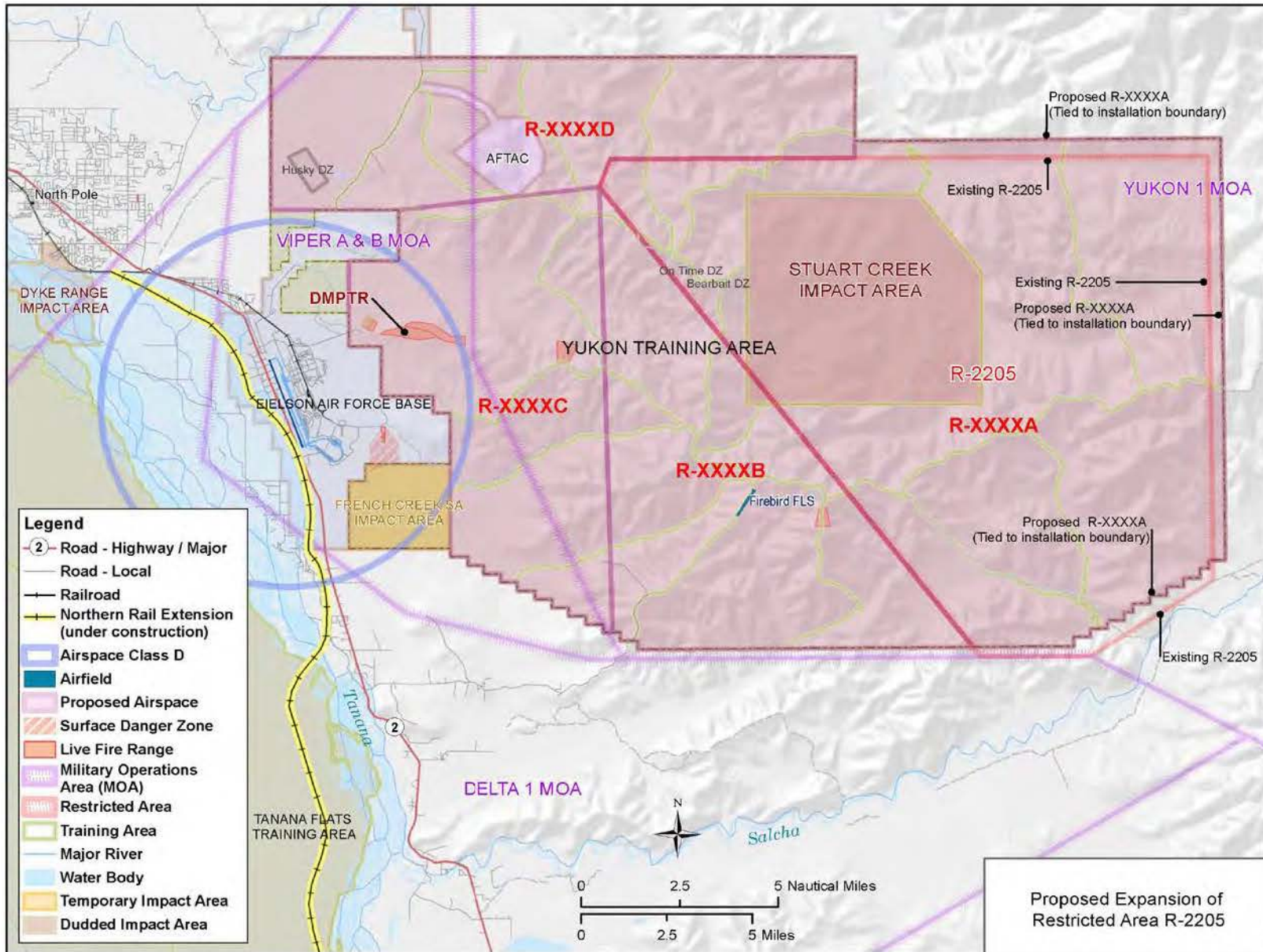


Figure 2-9. Proposed Expansion of Restricted Area R-2205

The airspace could be active 12 hours per day, 7:00 a.m. to 7:00 p.m. local time, Monday through Friday, and other times, as required and stipulated by NOTAM. As noted above, the scheduled use of this proposed restricted area would require that processes be outlined in procedures and agreements between the Army and Air Force to ensure cooperative and effective joint use of this airspace while having minimal effects on Eielson AFB airfield operations. Scheduled use of this airspace would be disseminated through the SUAIS.

2.1.4.2 No Action Alternative

Under the No Action Alternative, there would be no expansion of the restricted area R-2205, including over the DMPTR or the other proposed areas in the YTA. The lack of this capability would preclude realistic JJIM training with other forces critical to the JPARC vision, goals, and future concept of operations.

2.1.4.3 Alternatives Considered But Not Carried Forward

One other alternative was examined initially during the master planning and scoping process but was not carried forward for further consideration because it did not adequately meet the selection and requirements criteria regarding the purpose and need of this proposed action.

This alternative proposed subdividing the restricted area in R-2205 into selectively segmented and standardized blocks around a generalized boundary of YTA. This boundary would not have included all the restricted area needed for full coverage in the southwest sector of YTA. It would also have resulted in requiring restricted area beyond existing military-controlled land north of the existing far northeast quadrant of the YTA boundary line.

2.1.5 Night Joint Training

2.1.5.1 Proposed Action

The combination of Energy Policy Act of 2005 that extended the calendar days for daylight saving time into March and November, the limitations of the 1997 Record of Decision (ROD) for the *Final Environmental Impact Statement, Alaska Military Operations Areas*, and the necessity to conduct night training after nautical twilight severely limits the capability of the Air Force to conduct any night MFEs during the exercise season, as described in Section [1.3.1.4](#). This proposal would extend operating hours to allow the Air Force to more effectively meet night joint training requirements during March and October.

Key considerations and requirements applied for night joint training include the following:

- Extended hours would need to be available for both existing and proposed future military training SUA in JPARC.
- No infrastructure is needed for night flight training.
- Impacts on noise-sensitive areas would be minimized.
- Mitigations in the ROD for the *Final Environmental Impact Statement, Alaska Military Operations Areas*, issued in 1997, do not permit MFEs during September, December, and January, which limits overall night training opportunities for joint Air Force, Navy, and/or Marine Corps flying exercises to the months of February, March, October, and November (Air Force 1997-1). The proposed action does not limit the ability or capabilities of the Army to conduct night flying training exercises as currently undertaken.

- Night ordnance use by the Air Force would take place during one RED FLAG exercise in a given year at JPARC as part of this proposed action. For a 2-week RED FLAG exercise, night bombing would be undertaken during 9 nights. It is planned that Air Force CAS training activities would be included during night ordnance use. The ordnance use exercises could continue as late as midnight, with aircraft landing by 1:00 a.m. local time. The ordnance would be composed of both live and inert types. The ordnance would be expended in the existing Stuart Creek Impact Area within R-2205 in YTA and the Oklahoma Impact Area in R-2202 in DTA-West. It is proposed that equal ordnance amounts would be expended in each impact area. The rounds proposed to be fired after 10:00 p.m. for this proposal are currently being fired by the Air Force under baseline conditions, and this proposal would shift the firing time to after 10:00 p.m. [Table 2-14](#) provides representative types of ordnance and amounts to be expended during the night portion of a 2-week exercise.

Table 2-14. Night Ordnance Expended (typical)

Night Training Ordnance Types	Night Ordnance Utilization
MK-82(Inert)/BDU-50 (500 lb)	100
MK-82(Live) (500 lb)	12
MK-84(Inert)/BDU-56 (2000 lb)	9
MK-84(Live) (2000 lb)	4
GBU-12(Inert)/BDU-50 (500 lb)	22
GBU-24(Inert)/BDU-56 (2000 lb)	2
LGTR (Inert) (BDU-59)(89 lb)	24
30 mm rounds	2,000 (1,000 Inert/1,000 Live)
20 mm rounds	2,000 (1,000 Inert/1,000 Live)

Key: BDU=bomb dummy unit; GBU=Guided Bomb Unit; lb=pound; LGTR= Laser Guided Training Round; MK=mark; mm=millimeter.

2.1.5.1.1 Alternative A

The proposed action proposes to extend the JPARC MOA hours to allow MFE tactical operations until midnight and landing by 1:00 a.m., local time, during March and October. This would allow night training during these 2 months for a minimum of 1.5 hours to a maximum of 2.5 hours for each exercise. Such exercise sessions would typically occur up to 10 nights per year with the number of aircraft sorties participating in each session (50 plus) being somewhat less than each daytime session (up to 100). Both existing and proposed future SUA would be used to accommodate night training while continuing to ensure noise-sensitive areas are avoided during those later-hour operations.

2.1.5.1.2 Alternative B (Preferred Alternative)

Under this alternative, JPARC MOA hours would be extended to allow all MFE and routine tactical training operations until midnight and landing by 1:00 a.m., local time, during all months of the year and for all training by military users of the existing and proposed future JPARC SUA requiring night flight training.

Alternative B was selected as the Preferred Alternative because it provides the Air Force with the optimum capability to conduct routine night operations in addition to MFE night flying capability with no limitations during the year.

2.1.5.2 No Action Alternative

The No Action Alternative would continue to limit MOA hours to 10:00 p.m. during all months of the year. This would not compensate for the extended length of daylight saving time into March and November, which impedes training during these two months. Therefore, a night training exercise in March or early October would continue to be limited to less than 1 hour during those two months and, therefore, would not meet military tactical training needs.

2.1.5.3 Alternatives Considered But Not Carried Forward

The alternative not carried forward was to extend JPARC operating hours for all training purposes until 11:00 p.m. and landing by midnight, local time, during March and October. This option was not viable since night training requirements for training other than MFEs cannot be accomplished during other months of the year to provide sufficient hours of darkness to accomplish this training.

2.1.6 Unmanned Aerial Vehicle Access

UAVs have emerged as a viable platform for reconnaissance, surveillance, and other activities for the Army and Air Force. Integrating these activities with other forms of military training and exercise missions will ensure seamless operations. All military Services operate with UAVs in combat daily, from small hand-launched platforms like the Raven to globally operated intelligence platforms like the Global Hawk. Operators need UAV proficiency training, and strategists must learn the various ways that UAVs may be employed against enemy forces. Such training is also required for ground crews, Intelligence, Command and Control, and other functions having a role in UAV mission planning and operations. UAVs are currently used extensively by the Army in restricted areas. They often use Certificates of Authorization (COA) to transit the airspace between the runways and the restricted areas. The Air Force flies UAVs only to a limited extent in Alaska. Military planners predict that UAV use will continue to increase, compounding the need to accommodate further UAV training in existing range target areas. Expanding UAV access throughout the ranges and airspace will be required to fully replicate combat situations.

UAVs will need to be deployed from launch sites (such as airfields or landing zones) to every restricted area within JPARC. Currently, without the ability to sense and avoid, UAVs can only operate in a restricted area or other suitable airspace as determined by the FAA. Presently, a Certificate of Authorization (COA) must be granted by the FAA for operating a UAV outside of a restricted airspace with strict operating restrictions that include a requirement for a ground observer or an accompanying “chase” aircraft maintaining constant visual contact with the UAV to ensure those operations do not interfere with other aircraft. The FAA has authorized a COA for limited DoD UAV flight activities, however, this has not always provided the level of airspace access necessary to accomplish all mission activities. Any final decisions on establishing each proposed UAV corridor as either a restricted area, COA authorization, or other designation would be pursued through the appropriate proposal/application processes with a comprehensive operational and technical review by the FAA. Regardless of the airspace option and FAA application processes/criteria to be applied for these corridors, the EIS analyses examined the more restrictive impacts a restricted area designation may have on other airspace uses in the region. The FAA, DoD, and other agencies continue to collaborate on those near, mid, and long term solutions for integrating UAV operations and supporting ground elements into the National Airspace System while ensuring they present no threat to the general public and do not present any flight risks to other airspace users.

Connectivity is required between launch sites, restricted areas, and MOAs in JPARC. UAV access corridors will need to be located in controlled airspace, separated from civil air corridors, and be within

radar and radio coverage. UAVs need to be tracked and controlled from a central location through line-of-sight and beyond line-of-sight (satellite).

Seamless restricted area connections would need to be established between the launch sites and restricted areas as shown in [Figure 2-10](#), in order to conduct mission activities more representative of a combat environment. For instance, the Army could launch a UAV from Allen Army Airfield (AAF) into R-2202, conduct a mission activity within that restricted area, continue through the corridor to R-2211 where a second mission activity would be conducted, and then recover the UAV at Fort Wainwright. The alignment for each corridor represents the approximate centerline location of these 5- to 8-NM-wide corridors in most effectively linking the airfields and airspace listed in [Table 2-15](#). Each corridor is identified as a separate proposed action with the primary objective being to develop alternatives that would provide optimum, long-term flexibility for JPARC UAV capability. Each proposed action considers alternatives that would provide for the safest and the most direct and effective means of transiting UAVs between the individual launch sites and range training areas. It is estimated that UAV operations would be conducted twice weekly and up to four times each day during weekdays with other times stipulated by NOTAM. UAVs would operate both day and night to provide maximum joint training flexibility. These aircraft would operate at normal cruise speeds that are estimated to average 120 knots. The UAVs would be outfitted with a Mode-C transponder and FAA-approved lighting for radar tracking and visibility.

Table 2-15. Proposed Unmanned Aerial Vehicle Corridor Use and Dimensions

Uses common to all proposed actions and alternatives:		
Times of Use: 7:00 a.m.–7:00 p.m. daily, Monday–Friday, other times by NOTAM approximately 242 days annually		
UAV Types: MQ-1 (Predator), RQ-4 (Global Hawk), MQ-5B (Hunter), MQ-9 (Reaper), RQ-8B (Fire Scout), RQ-7B (Shadow), MQ-1C (Gray Eagle), BAT-MAV WASP III, gMAV, XM156 Class I, K-Max, A160T Hummingbird, and other future UAVs		
UAV Armaments: Lasers, GBU-12, Hellfire Laser Carry Trainer		
Proposed Actions and Alternatives¹	Proposed Width and Altitudes	
Corridor between Eielson Air Force Base and R-2211	Alternative A Restricted Area	8 NM wide; 1,200 feet AGL to 17,999 feet MSL, stratified in three layers
	Alternative B COA	Same as Alternative A
Corridor between Eielson Air Force Base and R-2205	Alternative A Restricted Area	5 NM wide; 1,200 feet AGL to 5,000 feet MSL
	Alternative B COA	Same as Alternative A
Corridor between Allen Army Airfield and R-2202	Alternative A Restricted Area	5 NM wide; 1,200 feet AGL to 5,000 feet MSL
	Alternative B COA	Same as Alternative A
Corridor between R-2202 and R-2211	Alternative A Restricted Area	8 NM wide; 1,200 feet AGL to 17,999 feet MSL, stratified in three layers
	Alternative B COA	Same as Alternative A
Corridor between R-2205 and R-2202	Alternative A Restricted Area	8 NM wide; 1,200 feet AGL to 17,999 feet MSL, stratified in three layers
	Alternative B COA	Same as Alternative A
Corridor between Fort Wainwright and R-2211	Alternative A Restricted Area	8 NM wide; 1,200 feet AGL to 17,999 feet MSL, stratified in three layers
	Alternative B COA	Same as Alternative A
Corridor between Fort Wainwright and R-2205	Alternative A Restricted Area	5 NM wide; 1,200 feet AGL to 5,000 feet MSL
	Alternative B COA	Same as Alternative A

¹ Alternative A is restricted or other suitable airspace as determined by the FAA.

Key: AGL=above ground level; COA=Certificate of Authorization; FAA=Federal Aviation Administration; GBU=Guided Bomb Unit; MSL=mean sea level; NM=nautical miles; NOTAM=Notice to Airmen; UAV=unmanned aerial vehicle.

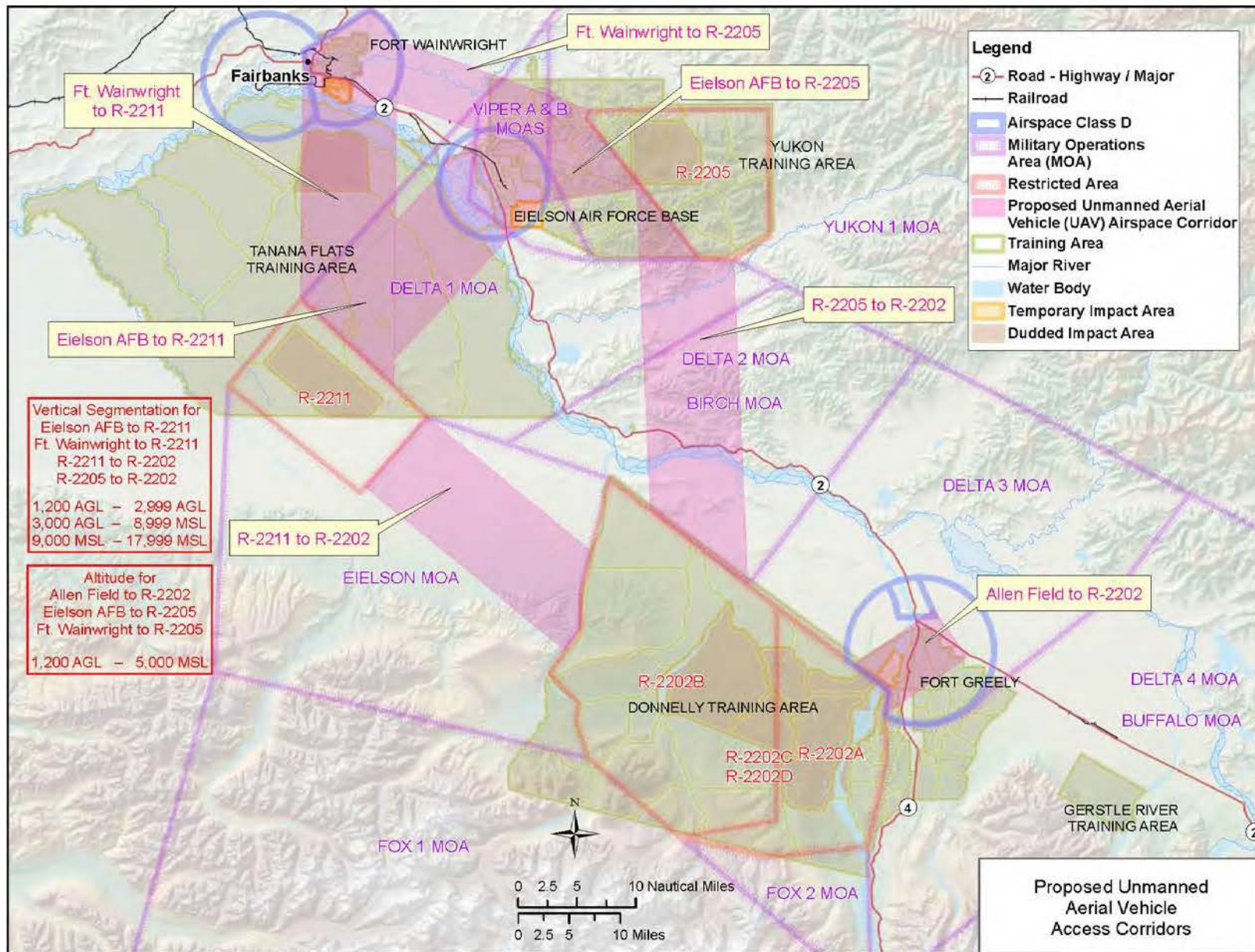


Figure 2-10. Proposed Unmanned Aerial Vehicle Access Corridors

Chapter [3.0](#), Affected Environment and Environmental Consequences, provides the description and annual use of the restricted areas associated with the alternatives. [Table 2-15](#) describes the proposed use of each alternative action for transiting UAVs within each of the indicated corridor proposals. The UAV armaments noted in this table would not be used within the corridors. Alternative A is a proposal to establish restricted or other suitable airspace as determined by the FAA, and Alternative B is a proposal to establish an area authorized by a COA for transiting the UAVs. Siting considerations for all alternatives are as follows: (1) the corridors must be in controlled airspace, (2) the expected impact on civil air traffic must be minimal, and (3) the corridors must be within radio and radar coverage.

2.1.6.1 Proposed Action – Establish Link Between Eielson AFB and R-2211

It is proposed that an FAA-approved UAV corridor be established to link Eielson AFB and R-2211, with consideration given to the following alternatives.

2.1.6.1.1 Alternative A (Preferred Alternative)

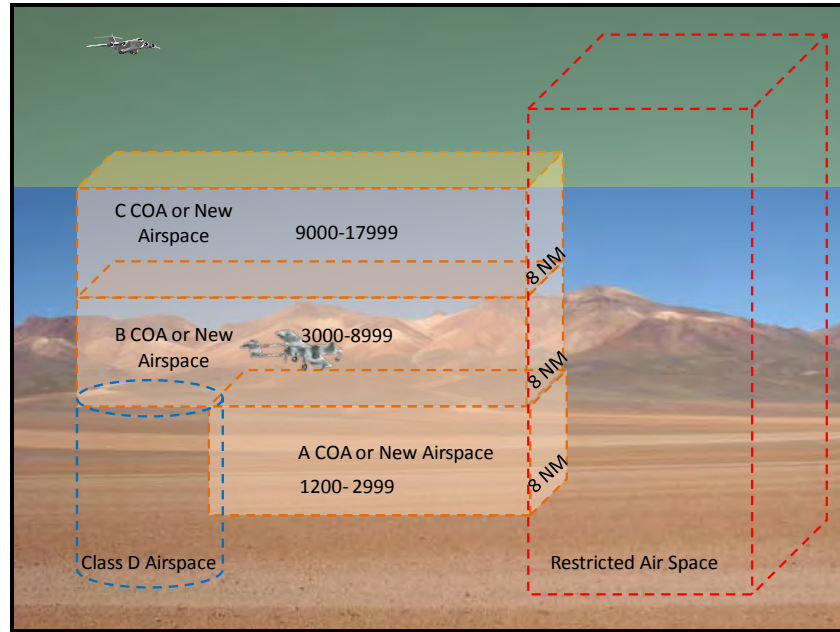
Alternative A was selected as the Preferred Alternative for this proposed action. Alternative A was selected as the Preferred Alternative because UAVs are a relatively new addition to U.S. airspace. With rapidly expanding technologies and employment practices, having the FAA engage in Rules Making procedures now will allow the Army and Air Force to practice employing UAVs during training events. Additionally, as the UAV industry produces new technologies and capabilities, having already established FAA rules for UAV airspace usage will allow the Army and Air Force the ability to employ these new technologies as they become available without having to engage in additional Rules Making procedures. (Note: for the same reasons, Alternative A for each respective UAV Access proposed action described in Sections [2.1.6.2](#) through [2.1.6.7](#) was selected as the Preferred Alternative.)

AIRSPACE STRUCTURE

Under this alternative, a corridor of restricted or other suitable airspace, as determined by the FAA, would be established between Eielson AFB and the R-2211 boundary, as depicted in [Figure 2-10](#). This restricted area corridor would be approximately 8 NM wide and extend from 1,200 feet AGL to 17,999 feet MSL to provide sufficient lateral and vertical airspace for UAVs to operate while launching to, and recovering from, training activities in R-2211. [Figure 2-11](#) provides a representative illustration of how the proposed UAV corridors would be segmented by altitude layers. Since restricted airspace would not be required at the ground level, control of the lands beneath this airspace would not be necessary to establish the restricted area. This airspace would only be activated during those daily times of use reflected in [Table 2-15](#) when UAV training activities are projected to occur.

AIRSPACE OPERATIONS

Training activities currently conducted by fighter, bomber, rotary-wing, and cargo-type aircraft in R-2211 include air combat training, basic fighter maneuvers, air combat maneuvers, intercept training, low-altitude air-to-air training, low-altitude step-down training, and simulated low-altitude surface attack tactics. Representative figures on annual baseline sortie-operations conducted within this restricted area are provided in Chapter [3.0](#), Affected Environment and Environmental Consequences.



Key: COA=Certificate of Authorization; NM=nautical miles.

Source: USARAK Aviation 2011.

**Figure 2-11. Unmanned Aerial Vehicle Corridor
Airspace Classification Segmentation**

2.1.6.1.2 Alternative B

AIRSPACE STRUCTURE

Under this alternative, a corridor between Eielson AFB and R-2211 would be established via a COA. A COA is issued by the FAA Air Traffic Organization to an operator for a specific unmanned aircraft activity. This requires submittal of an application, followed by a comprehensive operational and technical review by the FAA to determine what provisions or limitations may be imposed as part of the approval to ensure that UAVs can operate safely with other airspace users.

AIRSPACE OPERATIONS

The projected use of the COA under this alternative is listed in [Table 2-15](#). UAV activities would be conducted intermittently, and the COA would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.1.3 No Action Alternative

The No Action Alternative would not provide any means of operating UAVs between Eielson AFB and R-2211, thus preventing use of this airspace to conduct essential UAV training activities.

2.1.6.1.4 Alternatives Considered But Not Carried Forward

The alternatives identified for this proposed action are considered possible means for linking Eielson AFB and R-2211. No other alternatives were considered.

2.1.6.2 Proposed Action – Establish Corridor Between Eielson AFB and R-2205

It is proposed that an FAA-approved UAV corridor be established that links Eielson AFB and R-2205, with consideration given to the following alternatives (see [Figure 2-10](#)).

2.1.6.2.1 Alternative A (Preferred Alternative)

Alternative A was selected as the Preferred Alternative for this proposed action for the same reason that each respective Alternative A was selected as the Preferred Alternative for the other UAV Access proposed actions (see Section [2.1.6.1.1](#)).

AIRSPACE STRUCTURE

Under this alternative, a corridor of restricted or other suitable airspace, as determined by the FAA, would be established between Eielson AFB Class D airspace and the R-2205 boundary, as shown in [Figure 2-10](#). This restricted area corridor would be approximately 5 NM wide and extend from 1,200 feet AGL to 5,000 feet MSL to provide sufficient lateral and vertical airspace for UAVs to operate while launching to, and recovering from, training activities in R-2205. No activities would be conducted within the corridor that would require control of the lands beneath this proposed restricted area. This airspace would only be activated during those times of use reflected in [Table 2-15](#) when UAV training activities are projected to occur.

AIRSPACE OPERATIONS

Activities currently conducted in R-2205 include several different training operations using fighter, bomber, and helicopter aircraft types. CAS training, electronic warfare training, aerial gunnery, bombing, lights-out operations, and simulated downed-pilot exercises are conducted by A-10, F-16, F-18, F-22, and F-15 aircraft. C-17 and C-130 aircraft conduct bundle drops, combined search and rescue operations, and parachute drops not conducted in accordance with Federal Aviation Regulation (FAR) Part 105. CH-47, HH-60, UH-60, and OH-58 rotary-wing aircraft conduct aerial gunnery, sling load operations, fast rope in hot DZ, and electronic warfare training. UAV reconnaissance is also conducted in this restricted area. A description and representative figures on the annual baseline use of R-2205 are provided in Chapter [3.0](#), Affected Environment and Environmental Consequences.

The projected UAV use of this alternative is listed in [Table 2-15](#). This airspace would only be activated during those daily periods when UAV training activities are in progress.

2.1.6.2.2 Alternative B

AIRSPACE STRUCTURE

Under this alternative, a corridor between Eielson AFB and R-2205 would be established via a COA. COA approval would require comprehensive operational and technical review of this proposal by the FAA to determine provisions or limitations that may be imposed as part of the approval to ensure that UAVs can operate safely with other airspace users in the corridor.

AIRSPACE OPERATIONS

The projected use of the COA under this alternative is listed in [Table 2-15](#). UAV activities would be conducted intermittently, and the COA would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.2.3 No Action Alternative

The No Action Alternative would not provide any means of operating UAVs between Eielson AFB and R-2205, thus preventing use of this airspace to conduct essential UAV training activities.

2.1.6.2.4 Alternatives Considered But Not Carried Forward

The alternatives identified for this proposed action are considered possible means for linking Eielson AFB and R-2205. No other alternatives were considered.

2.1.6.3 Proposed Action – Establish Link Between Allen Army Airfield and R-2202

It is proposed that an FAA-approved UAV corridor be established that links Allen AAF and R-2202, with consideration given to the following alternatives (see [Figure 2-10](#)).

2.1.6.3.1 Alternative A (Preferred Alternative)

Alternative A was selected as the Preferred Alternative for this proposed action for the same reasons that each respective Alternative A was selected as the Preferred Alternative for the other UAV Access proposed actions (see Section [2.1.6.1.1](#)).

AIRSPACE STRUCTURE

Under this alternative, a corridor of restricted or other suitable airspace, as determined by the FAA, would be established between Allen AAF and the R-2202 boundary. This restricted area corridor would be approximately 5 NM wide and extend from 1,200 feet AGL to 5,000 feet MSL to provide sufficient lateral and vertical airspace for UAVs to operate while launching to, and recovering from, training activities in R-2202. Since restricted airspace would not be required at the ground level, control of the lands beneath this airspace would not be necessary to establish the restricted area. This airspace would only be activated during those times of use reflected in [Table 2-15](#) when UAV training activities are projected to occur.

AIRSPACE OPERATIONS

Activities currently performed in R-2202 by various fighter, bomber, and helicopter aircraft include CAS, air-to-ground aerial gunnery, bombing, unmanned aerial reconnaissance, and air-to-air combat training. Chapter [3.0](#), Affected Environment and Environmental Consequences, includes a description and representative figures on the annual baseline use of this restricted area.

[Table 2-15](#) shows the projected UAV flights to be conducted in this proposed restricted area. UAV activities would be conducted intermittently, and the restricted area would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.3.2 Alternative B

AIRSPACE STRUCTURE

Under this alternative, a corridor between Allen AAF and R-2202 would be established via a COA. COA approval would require comprehensive operational and technical review of this proposal by the FAA to determine provisions or limitations that may be imposed as part of the approval to ensure that UAVs can operate safely with other airspace users in the corridor.

AIRSPACE OPERATIONS

The projected UAV activities for the proposed COA is listed in [Table 2-15](#). UAV activities would be conducted intermittently, and the COA would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.3.3 No Action Alternative

The No Action Alternative would not provide any means of operating UAVs between Allen AAF and R-2202, thus preventing use of this airspace to conduct essential UAV training activities.

2.1.6.3.4 Alternatives Considered But Not Carried Forward

The alternatives identified for this proposed action are considered possible means for linking Allen AAF and R-2202. No other alternatives were considered.

2.1.6.4 Proposed Action – Establish Link Between R-2202 and R-2211

It is proposed that an FAA-approved UAV corridor be established between R-2202 and R-2211, with consideration given to the following alternatives (see [Figure 2-10](#)).

2.1.6.4.1 Alternative A (Preferred Alternative)

Alternative A was selected as the Preferred Alternative for this proposed action for the same reasons that each respective Alternative A was selected as the Preferred Alternative for the other UAV Access proposed actions (see Section [2.1.6.1.1](#)).

AIRSPACE STRUCTURE

Under this alternative, a corridor of restricted or other suitable airspace, as determined by the FAA, would be established between R-2202 and R-2211. This restricted area corridor would be approximately 8 NM wide and extend from 1,200 feet AGL to 17,999 feet MSL to provide sufficient lateral and vertical airspace for UAVs to operate between these two restricted areas. Since restricted airspace would not be required at the ground level, control of the lands beneath this airspace would not be necessary to establish the restricted area. This airspace would only be activated during those times of use reflected in [Table 2-15](#) when UAV training activities are projected to occur.

AIRSPACE OPERATIONS

The representative annual baseline use and activities performed in R-2202 and R-2211 are discussed above and shown in Chapter [3.0](#), Affected Environment and Environmental Consequences. The projected UAV use of the proposed restricted area corridor is described in [Table 2-15](#). UAV activities would be conducted intermittently, and the restricted area would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.4.2 Alternative B

AIRSPACE STRUCTURE

Under this alternative, a corridor between R-2202 and R-2211 would be established via a COA. COA approval would require comprehensive operational and technical review of this proposal by the FAA to determine provisions or limitations that may be imposed as part of the approval to ensure that UAVs can operate safely with other airspace users in the area between these two restricted areas.

AIRSPACE OPERATIONS

The projected UAV activities for the proposed COA under this alternative is shown in [Table 2-15](#). UAV activities would be conducted intermittently, and the COA would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.4.3 No Action Alternative

The No Action Alternative would not provide any means of operating UAVs between R-2202 and R-2211, thus preventing interactive use of these two restricted areas for conducting UAV training activities.

2.1.6.4.4 Alternatives Considered But Not Carried Forward

The alternatives identified for this proposed action are considered possible means for linking R-2202 and R-2211. No other alternatives were considered.

2.1.6.5 Proposed Action – Establish Link Between R-2205 and R-2202

It is proposed that an FAA-approved UAV corridor be established that links R-2205 and R-2202, with consideration given to the following alternatives (see [Figure 2-10](#)).

2.1.6.5.1 Alternative A (Preferred Alternative)

Alternative A was selected as the Preferred Alternative for this proposed action for the same reasons that each respective Alternative A was selected as the Preferred Alternative for the other UAV Access proposed actions (see Section [2.1.6.1.1](#)).

AIRSPACE STRUCTURE

Under this alternative, a corridor of restricted or other suitable airspace, as determined by the FAA, would be established between R-2205 and R-2202. This restricted area corridor would be approximately 8 NM wide and extend from 1,200 feet AGL to 17,999 feet MSL to provide sufficient lateral and vertical airspace for UAVs to operate between these two restricted areas. Since restricted airspace would not be required at the ground level, control of the lands beneath this airspace would not be necessary to establish the restricted area. This airspace would only be activated during those times of use reflected in [Table 2-15](#) when UAV training activities are projected to occur.

AIRSPACE OPERATIONS

The representative annual baseline use and activities performed in R-2205 and R-2202 are discussed above and provided in Chapter [3.0](#), Affected Environment and Environmental Consequences. The projected UAV use of the proposed restricted area corridor is listed in [Table 2-15](#). UAV activities would be conducted intermittently, and the restricted area would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.5.2 Alternative B

AIRSPACE STRUCTURE

Under this alternative, a corridor between R-2205 and R-2202 would be established via a COA. COA approval would require comprehensive operational and technical review of this proposal by the FAA to determine possible impacts on other airspace users and provisions or limitations that may be imposed as

part of the approval to ensure that UAVs can operate safely with other airspace users in the area between these two restricted areas.

AIRSPACE OPERATIONS

The projected UAV activities for the proposed COA under this alternative are listed in [Table 2-15](#). UAV activities would be conducted intermittently, and the COA would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.5.3 No Action Alternative

The No Action Alternative would not provide any means of operating UAVs between R-2205 and R-2202, thus preventing interactive use of these two restricted areas for conducting UAV training activities.

2.1.6.5.4 Alternatives Considered But Not Carried Forward

The alternatives identified for this proposed action are considered possible means for linking R-2205 and R-2202. No other alternatives were considered.

2.1.6.6 Proposed Action – Establish Link Between Fort Wainwright and R-2211

It is proposed that an FAA-approved UAV corridor be established that links Fort Wainwright and R-2211, with consideration given to the following alternatives (see [Figure 2-10](#)).

2.1.6.6.1 Alternative A (Preferred Alternative)

Alternative A was selected as the Preferred Alternative for this proposed action for the same reasons that each respective Alternative A was selected as the Preferred Alternative for the other UAV Access proposed actions (see Section [2.1.6.1.1](#)).

AIRSPACE STRUCTURE

Under this alternative, a corridor of restricted or other suitable airspace, as determined by the FAA, would be established between Fort Wainwright and R-2211. This restricted area corridor would be approximately 8 NM wide and extend from 1,200 feet AGL to 17,999 feet MSL to provide sufficient lateral and vertical airspace for UAVs to operate between these two areas. Since restricted airspace would not be required at the ground level, control of the lands beneath this airspace would not be necessary to establish the restricted area. This airspace would only be activated during those times of use reflected in [Table 2-15](#) when UAV training activities are projected to occur.

AIRSPACE OPERATIONS

The representative annual baseline use and types of training activities conducted in R-2211 are discussed above and shown in Chapter [3.0](#), Affected Environment and Environmental Consequences. The projected use of this restricted area corridor for UAV flights is listed in [Table 2-15](#). UAV activities would be conducted intermittently, and the restricted area would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.6.2 Alternative B

AIRSPACE STRUCTURE

The proposed action for this alternative is to establish a corridor between Fort Wainwright and R-2211 via a COA. COA approval would require comprehensive operational and technical review of this proposal by the FAA to determine the possible impacts on other airspace users in the vicinity specified in the COA and the provisions or limitations that may be imposed as part of the approval to ensure that UAVs can operate safely with other airspace users in the corridor.

AIRSPACE OPERATIONS

The projected UAV activities for the proposed COA are listed in [Table 2-15](#). UAV activities would be conducted intermittently, and the COA would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.6.3 No Action Alternative

The No Action Alternative would not provide any means of operating UAVs between Fort Wainwright and R-2211, thus preventing use of this airspace to conduct essential UAV training activities.

2.1.6.6.4 Alternatives Considered But Not Carried Forward

The alternatives identified for this proposed action are considered possible means for linking Fort Wainwright and R-2211. No other alternatives were considered.

2.1.6.7 Proposed Action – Establish Link Between Fort Wainwright and R-2205

It is proposed that an FAA-approved UAV corridor be established that links Fort Wainwright and R-2205, with consideration given to the following alternatives (see [Figure 2-10](#)).

2.1.6.7.1 Alternative A (Preferred Alternative)

Alternative A was selected as the Preferred Alternative for this proposed action for the same reasons that each respective Alternative A was selected as the Preferred Alternative for the other UAV Access proposed actions (see Section [2.1.6.1.1](#)).

AIRSPACE STRUCTURE

Under this alternative, a corridor of restricted or other suitable airspace, as determined by the FAA, would be established between Fort Wainwright and R-2205. This restricted area corridor would be approximately 5 NM wide and extend from 1,200 feet AGL to 5,000 feet MSL to provide sufficient lateral and vertical airspace for UAVs to operate between these two areas. Since restricted airspace would not be required at the ground level, control of the lands beneath this airspace would not be necessary to establish the restricted area. This airspace would only be activated during those times of use reflected in [Table 2-15](#) when UAV training activities are projected to occur.

AIRSPACE OPERATIONS

The current use and types of training activities conducted in R-2205 are discussed above and shown in Chapter [3.0](#), Affected Environment and Environmental Consequences. The projected use of this restricted area corridor for UAV flights is listed in [Table 2-15](#). UAV activities would be conducted intermittently, and the restricted area would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.7.2 Alternative B

AIRSPACE STRUCTURE

Under this alternative, a corridor between Fort Wainwright and R-2205 would be established via a COA. COA approval would require comprehensive operational and technical review of this proposal by the FAA to determine the possible impacts on other airspace users in the vicinity specified in the COA and the provisions or limitations that may be imposed as part of the approval to ensure that UAVs can operate safely with other airspace users in the corridor.

AIRSPACE OPERATIONS

The projected UAV activities for the proposed COA is listed in [Table 2-15](#). UAV activities would be conducted intermittently, and the COA would be activated only for the period that a UAV would be transiting this corridor.

2.1.6.7.3 No Action Alternative

The No Action Alternative would not provide any means of operating UAVs between Fort Wainwright and R-2205, thus preventing use of this airspace to conduct essential UAV training activities.

2.1.6.7.4 Alternatives Considered But Not Carried Forward

The alternatives identified for this proposed action are considered possible means for linking Fort Wainwright and R-2205. No other alternatives were considered.

2.2 PROGRAMMATIC ACTIONS EVALUATED IN THIS EIS

The following projects require additional planning, programming, and design.

- Enhanced Ground Maneuver Space (Army)
- Tanana Flats Training Area (TFTA) Roadway Access (Army)
- Joint Air–Ground Integration Complex (JAGIC) (Army)
- Intermediate Staging Bases (ISBs) (Army)
- Missile Live-Fire for AIM-9 and AIM-120 (Air Force)
- Joint Precision Airdrop System (JPADS) DZs (Air Force)

During this extended process, new information about requirements, the environmental baseline, and financial resources will emerge. This planning process will benefit from an environmental study in this EIS and a programmatic decision. The programmatic documentation in this EIS will provide baseline information, project site selection and development criteria, and requirements prompting either additional studies or studies tiered from the *JPARC Modernization and Enhancement EIS* to allow for site-specific NEPA analyses based on the best available information. This information will also assist in identifying the need for additional surveys, permits, consultation requirements, and mitigations.

2.2.1 Enhanced Ground Maneuver Space

2.2.1.1 Proposed Action Alternative

The Army has four brigade equivalents in Alaska: SBCT, Airborne Brigade Combat Team (ABCT), Combat Aviation Brigade (CAB), and Engineer Brigade. While the current focus of each brigade is to support Army Force Generation for current operations, all of the brigades, except the CAB, have training requirements for a brigade-sized, non-live-fire maneuver exercise. The maneuver area space for each brigade with combat enablers is listed in [Table 2-16](#).

Table 2-16. Brigade Maneuver Space Requirements

SBCT	ABCT	EN BDE	CAB
90,297 km ²	31,805 km ²	62,466 km ²	56,498 km ²

Key: ABCT=Airborne Brigade Combat Team; CAB=Combat Aviation Brigade; km²=square kilometers; EN BDE=Engineer Brigade; SBCT=Stryker Brigade Combat Team.

The current ground training areas that include TFTA, DTA, and YTA lack adequate Army access roads and training area circulation routes ([Figure 2-12](#)). Moreover, seasonal changes limit year-round use for transiting vehicles. This could be improved by increasing internal circulation, enhancing maneuver space, integrating the proposed ISBs, and providing other support infrastructure within these JPARC ground maneuver areas. This proposal would provide year-round accessibility, internal circulation, and enhanced maneuver space to support brigade-level events with battalion-size training occurring in TFTA, YTA, and DTA. Brigade units would interact with JIIM components in order to provide a realistic training environment. The training frequency at this time is planned to support seven combat maneuver battalions that would train within TFTA, DTA, and YTA. Each battalion would train for a 10- to 14-day event at least once per year per battalion. Additionally, JIIM utilization of the enhanced ground maneuver space can be up to 242 days annually. The ground maneuver area could be used to train a Stryker company outside of the hazard footprints of aerial ordnance or indirect fire.

Units will continue to transition through the Wasilla/Matanuska Valley en route to the Donnelly and Fort Wainwright Training Areas. All unit movements will comply with directives of the Alaska Department of Transportation and all Army regulations concerning unit movements along public transportation routes. The number of unit movements may increase as the training operations tempo adjusts from a war footing to an Army preparing to respond to National Command Authority directives. From time to time, the Army may utilize those areas for which it has agreements with the State to use lands currently withdrawn from public use. The Army will remain compliant with the Sikes Act to allow recreation on lands not being actively used to support military training events.

Site selection and development considerations used to develop the alternatives for enhancing ground maneuver space include the following:

- Minimize the cost of additional roads by using existing roads where possible.
- Locate the proposed new maneuver areas within a supportable distance from existing and proposed ISBs (20 miles would represent about 2 hours of transit time daily).
- Limit the impacts on current air routes and corridors.

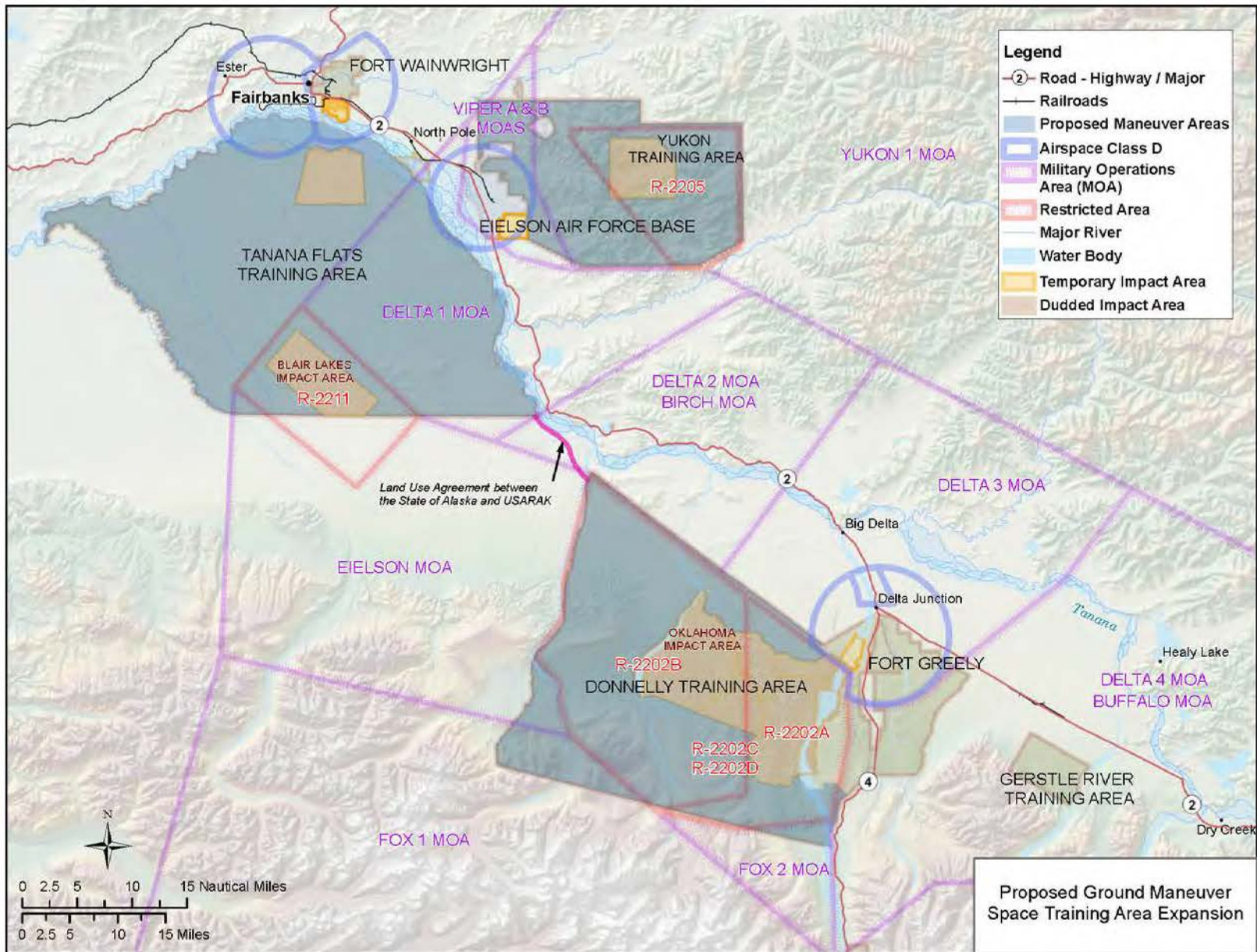


Figure 2-12. Proposed Ground Maneuver Space Training Area Expansion

- Minimize the impacts on cultural resources, wetlands, and critical habitat.
- Provide the SUA required for Air Cavalry training areas and the SBCT and ABCT in the maneuver areas.

Specific alternatives for direct access to DTA, YTA, and TFTA have not yet been developed to the point where a specific decision can be made. As such, year-round access, internal circulation, integration with proposed ISBs, and enhanced maneuver space in DTA, YTA, and TFTA will be treated in a programmatic manner in this EIS.

[Figure 2-12](#) depicts the existing maneuver training areas in DTA, YTA, and TFTA that are the focus of proposals for year-round accessibility, internal circulation routes, and enhanced and modernized Soldier maneuver space.

2.2.1.2 No Action Alternative

The No Action Alternative would not allow for the development, enhancement, modernization, and operation of year-round maneuver space in DTA, YTA, and TFTA. The Army has training requirements for a brigade-sized, non-live-fire maneuver exercise. The lack of year-round training capability would preclude realistic maneuver training, preventing the Army from meeting a required training component.

2.2.2 Tanana Flats Training Area Roadway Access

2.2.2.1 Proposed Action Alternative

The primary purpose of developing an improved and modernized circulation network within TFTA is to ensure year-round training access to the advantageous training areas on higher ground away from the Tanana River basin and from important TFTA training areas such as the Blair Lakes Impact Area ([Figure 2-13](#)).

Points of initial emphasis include: (1) transportation access across the Tanana River via the Alaska Railroad Corporation bridge near Salcha and (2) the identification of future access routes to the training areas. The bridge would connect the highway system to extensive military training grounds south of the river. It is part of a larger proposed eastward rail expansion of the Northern Rail Extension project. Northern Rail Extension project requirements also include, in addition to the rail line, new structures such as bridges, communications towers, and access roads for rail line construction and operation.

The desired road surface for primary roads would be an approximately 35-foot-wide aggregate surface that would permit the passage of two Stryker vehicles. The Strykers are a family of eight-wheeled, all-wheel-drive vehicles with a gross weight on the order of 18 to 20 tons or more, depending on equipment and armoring (Shannon and Wilson 2009). Further development of the TFTA roadway access proposal would provide for year-round access, internal circulation, expanded maneuver areas, ISBs, and supporting infrastructure, and thus marked improvement in Soldier maneuver exercises.

[Figure 2-13](#) shows the general study area for the TFTA access proposal, including the general west-southwesterly path of the roadway from a point near the future Northern Rail Extension Tanana River Crossing into the training area.

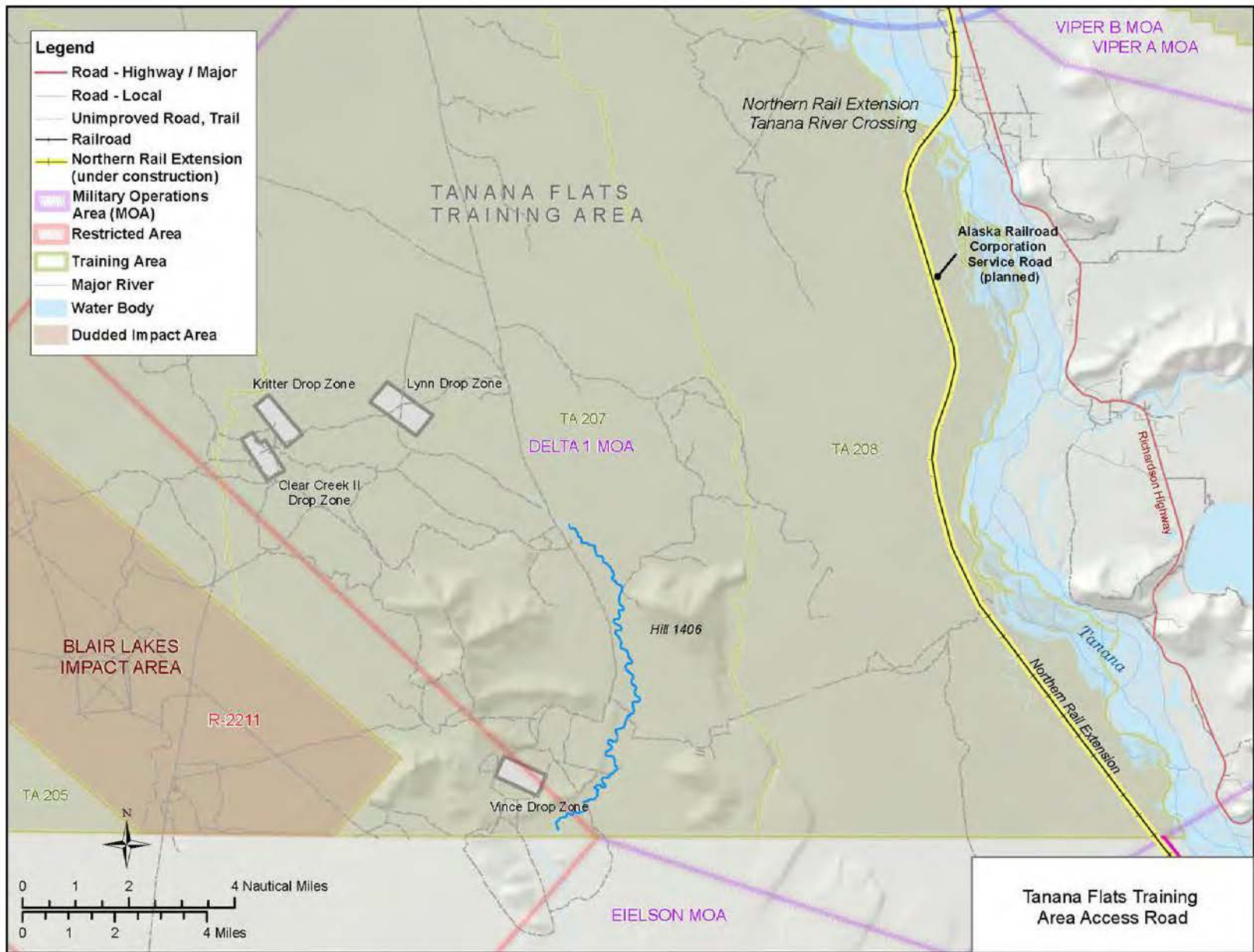


Figure 2-13. Proposed Tanana Flats Training Area Access Road

2.2.2.2 No Action Alternative

The No Action Alternative would not provide for the construction and operation of a year-round access road to provide maneuver space in TFTA. The Army has training requirements for brigade-sized, non-live-fire maneuver exercises in TFTA. The lack of year-round training capability would deny realistic maneuver training, preventing the Army from meeting a required training component and the ability to participate in joint training with the Air Force near the Blair Lakes Impact Area.

2.2.3 Joint Air–Ground Integration Complex

2.2.3.1 Proposed Action Alternative

The JAGIC is a proposed JPARC capability for JIIM and combined live-fire training (see [Figure 2-14](#)). The JAGIC would allow Army combined arms capabilities to jointly operate with the Air Force, Navy, and Marine Corps air-to-air and air-to-ground capabilities, along with Special Operations Forces (see Section [1.5.1.10](#)).

The JAGIC would consist of target arrangements with service roads, range support buildings, parking area, range tower, convoy live-fire route, urban centers, and an area for Service rocket training. Most of the targets, the convoy live-fire route, and the urban facilities would be concentrated in a 9- by 12-kilometer (km) area within the range, and the remainder would serve as a maneuver area. The JAGIC would support aerial target engagements with onboard weapons, aerial reconnaissance, joint tactical engagements, door gunnery training, convoy operations, and training against targets located in an urban environment.

The JAGIC is designed to support at least battalion-size training events interacting with Air Force components. At this time, the training program is designed to support seven combat maneuver battalions training independently of one another. Each battalion would train for a 10- to 14-day event at least once per year. Additionally, JIIM utilization of the JAGIC can be up to 242 days annually. The ground maneuver area for the range could be used to train a Stryker company outside of the hazard footprints of aerial ordnance or indirect fire. The proposed training is not routine, but realistic live-fire training includes more training requirements than the standard Army Digital Air–Ground Integration Range. Urban village centers and adjacent rural areas would be configured to permit simultaneous, integrated operations by Airmen and ground-based forces.

Air Force and Army aircraft would deploy modern weapons using realistic altitudes and speeds at targets downrange from the ground maneuver area without interrupting the surrounding, nonparticipating air traffic. [Table 2-17](#) provides the basic ordnance required for training exercises—exercises that are not, however, limited to these munitions. The intent of this table is to include force multipliers such as lasers, shape charges, breaching charges, and similar munitions in support of JAGIC integration with existing and proposed joint training and exercises.

UAVs would utilize nearby airfields or landing zones. Aircraft targets would require deconfliction by time and would be spatially separated from indirect fire targets for artillery and mortars. All targets would be visible from an observation post within the range.

An existing dud-producing range is planned for use. It would abut a previously contaminated impact area so as not to contaminate new land, such as a temporary impact area. Included in the ground maneuver area is an SBCT/ABCT company assault avenue of approach. The range should be rather flat with few wetlands and central to maneuver areas that provide for avenues of approach in combat scenarios.

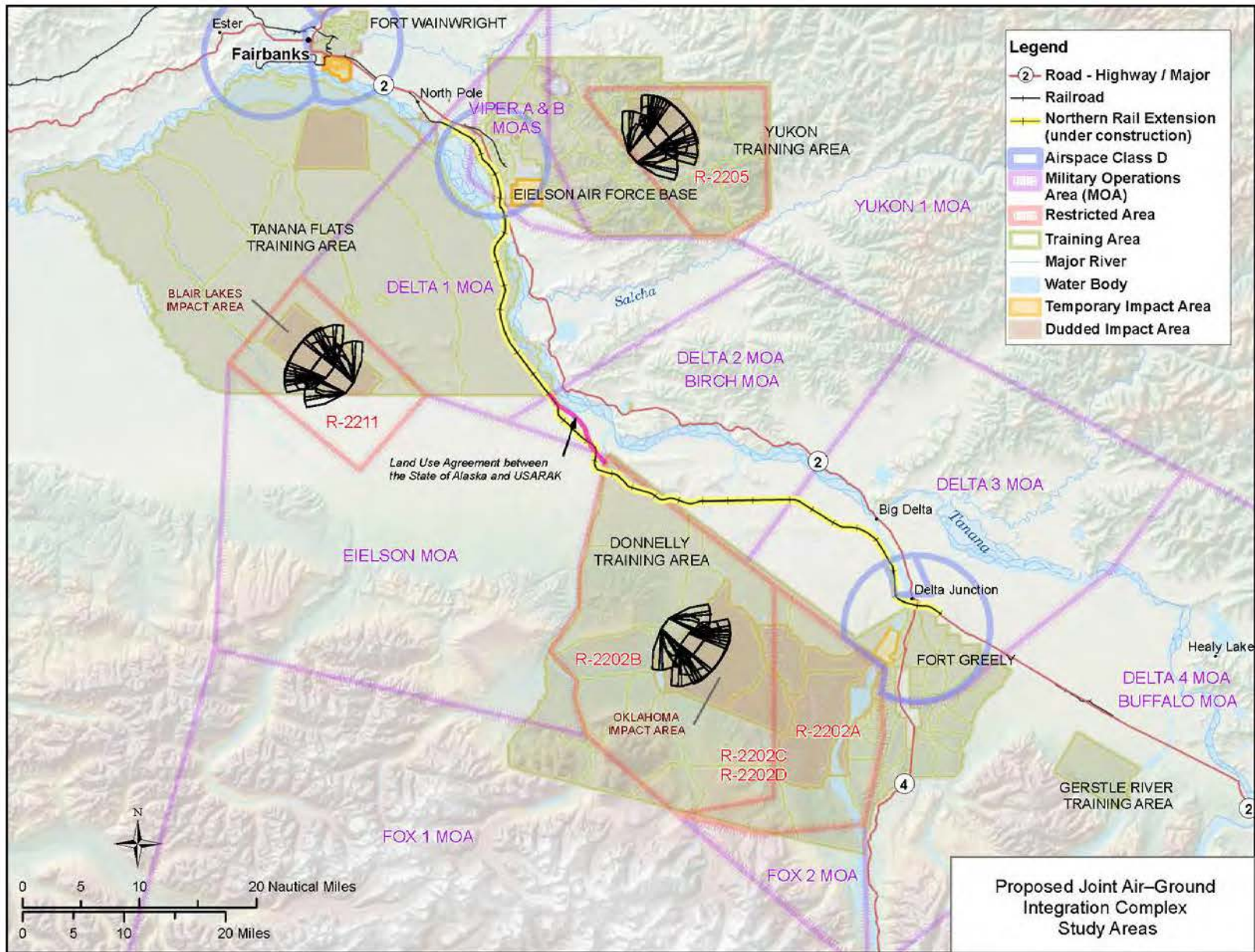


Figure 2-14. Proposed Joint Air-Ground Integration Complex Alternative Locations

Table 2-17. Types of Munitions Utilized in the Joint Air–Ground Integration Complex

Stryker .50 cal 105 mm MGS TOW-2B	All Small Arms 40 mm TPT 5.56 mm 7.62 mm .50 cal	Indirect Fire 60 mm, 81 mm, 120 mm 105 mm 155 mm
<u>Army Aviation</u> .50 cal 30 mm 2.75-inch Practice Rocket 7.62 mm Hellfire Laser Carry Trainer Other Lasers	Aerial Ordnance GBU-10, 12, 16, 24 at FL200–FL240 GBU-31, 32, 38 at FL200–FL240 GBU-32 at FL400–FL500, 1.5M	

Key: cal=caliber; FL=flight level; GBU=Guided Bomb Unit; M=mach; MGS=mobile gun system; mm=millimeter; TOW=tube-launched, optically-tracked, wire-command data link, guided missile; TPT=target practice tracer.

The restricted area and MOA airspace required to support a JAGIC must be of sufficient size and configuration to permit aircraft to maneuver prior to deploying ordnance on the target areas and to encompass the ordnance safety footprints during ordnance delivery. The existing R-2202, R-2205, and R-2211 areas each encompass sufficient lateral and vertical restricted airspace to contain ordnance footprints for the respective range target areas. The surrounding MOA airspace—Eielson, Birch, Buffalo, Yukon, and Fox MOAs—also provide sufficient maneuvering airspace to support JAGIC flight operations. The nature and use of these restricted areas and MOAs are described in detail in Sections [2.1.1](#) (Fox 3/Paxon MOA proposal) and [2.1.6](#) (UAV access proposal).

Current use of the restricted areas is shown in Chapter [3.0](#), Affected Environment and Environmental Consequences.

The range would feature realistic targets, an effective scoring system, and maintenance access by road or air. Power for scoring may be provided by generators or power lines, and communications may be transmitted by microwave or fiber optic cable. The targets should be integrated into an air defense system. While the range itself would be modeled on the standard Army Digital Air–Ground Integration Range, it would also include an integrated live-fire Military Operations on Urban Terrain (MOUT) complex. The ground range would need power and fiber lines and road access. The range should be close to a railhead or road to minimize the travel distance for ground forces and also have an ISB for administrative support.

Due to the operational requirements of the JAGIC, this range could dominate the training area and associated airspace whenever it is active during training exercises. Specifically, the complex urban terrain activities and live aerial ordnance delivery could satisfy other individual requirements; however, placing the burden on a single range and airspace with multiple requirements could limit overall training area utilization by setting up a competition for range time. Additionally, the size of this range could impact training and testing on surrounding infrastructure.

The following siting requirements were used to develop the proposed action:

- The restricted areas must be large enough to contain all of the hazard areas and UAV loitering areas.

- The location should fit into MFE tactical scenarios and be centrally located to the Yukon and Fox MOAs.
- Travel distance for ground and air forces should be minimized.
- The range needs to adjoin an existing dudded impact area.
- Impacts on nonparticipating air traffic should be minimized.
- The range must have UAV access from an airfield or landing zone.
- The ground area must be large enough to support JAGIC training land requirements. It is estimated that the overall complex footprint should be at least 12 by 18 kilometers (km), with the actual range area at 9 by 12 km.
- Construction of new roads and power and fiber optic lines should be minimized.
- The site should be close to ISBs and administrative facilities.
- Utilities needed for scoring would require operations and maintenance support.
- Locations that would affect wetlands and critical or sensitive habitats should be avoided to the extent possible.

JAGIC PROPOSED ACTION STUDY AREAS

Donnelly Training Area–West

One study area involves locating the JAGIC in the central area of DTA-West near the western boundary of the Oklahoma Impact Area. The complex would include the use of the live-fire village at the end of the fire line under the existing R-2202, from the Control Tower to the west. The complex would be able to use existing supporting infrastructure and access roads. However, if designed or used improperly, this complex could degrade Air Force investments in the Oklahoma Impact Area.

Yukon Training Area

A second study area is the Stuart Creek Impact Area within YTA. Use of Stuart Creek is feasible, but extensive unexploded ordnance (UXO) clearance could be a prerequisite for unimpeded ground maneuverability. Stuart Creek is already heavily used and could present scheduling challenges for other training exercises; coordinated scheduling and effective management of Stuart Creek use would be essential.

Tanana Flats Training Area

A third study area is the Blair Lakes Impact Area near the southern boundary of TFTA under the existing R-2211. There is already robust targetry in the Blair Lakes Impact Area. It also overlays the location for the firing observation point. Additional analysis is required to determine if this site has the ability to meet key training requirements, such as the requirement for offensive as opposed to defensive training.

JAGIC STUDY AREA ELIMINATED FROM FURTHER STUDY

Donnelly Training Area–East

This area, originally studied in the JPARC Master Plan, was located in the east side of DTA-West near the southeast boundary of the Oklahoma Impact Area. Since it would require the removal of the CRTIC activities in this area and this site presents the characteristics of a defensive location, it was not considered feasible to meet the key JAGIC siting and operational requirements.

2.2.3.2 No Action Alternative

The No Action Alternative would not provide for the creation and operation of the JAGIC. The lack of a joint air-to-ground integration training capability would deny realistic training, preventing the military from implementing a critical training component that fulfills the vision, goals, and objectives of the JPARC future joint training mission.

2.2.4 Intermediate Staging Bases

2.2.4.1 Proposed Action Alternative

The ISBs proposed to support Soldier training and maneuvers within JPARC would be used to house, maintain, and stage forces before insertion into the combat training area (Army Manual FM 100-5, Operations, Chapter 3.0, Force Projection). An ISB is normally located near but outside the training area. Components to be built would include permanent barracks, large parking areas for storage of truck and vehicular equipment, dining facilities, ammunition storage points, a petroleum-oil-lubricant area, and maintenance facilities. Existing utilities or generators would be used for energy.

The ISB may include an airfield for staging forces. The ISB airfield may be the initial theater reception and staging facility, making it the hub of Army aviation movement into the training area. Deploying forces would depart the ISB by rail, road, or air in preparation for missions in the training area. Onward movement from the ISB to the combat zone may require some level of reassembly in the training area.

The concept of siting ISBs (see [Figure 2-15](#)) near key insertion points locates the Soldiers closer to training areas. They would also provide maintenance and logistics support away from main cantonment areas. Four ISBs with a combined capacity for up to 2,500 Soldiers are needed, one ISB supporting 1,000 Soldiers and three supporting 500 Soldiers each. Each ISB, approximately 110 acres in size, would support large-scale exercises and other training involving combinations of units, including Brigade Combat Teams, Maneuver Enhancement Brigades, and functional brigades.

Constructing and maintaining an ISB present several challenges. These include combining personnel and equipment in a controlled area; scheduling units and material for movement; managing real estate; and providing communications infrastructure. Sizing the ISB to the training space will determine the requirement for the ISB. YTA would need a battalion-size ISB to support a battalion-size maneuver force. Each ISB would also need digital communications connections.

Key siting considerations and implementation options used to develop alternatives for the proposed ISBs include the following:

- Locate the ISB near the existing transportation system serving the parent installation.
- Locate the ISB near key range roads and points of access into training areas.
- Colocate the ISB with planned bridge crossings.
- Position ISB sites to provide proximity to more training land and ranges.

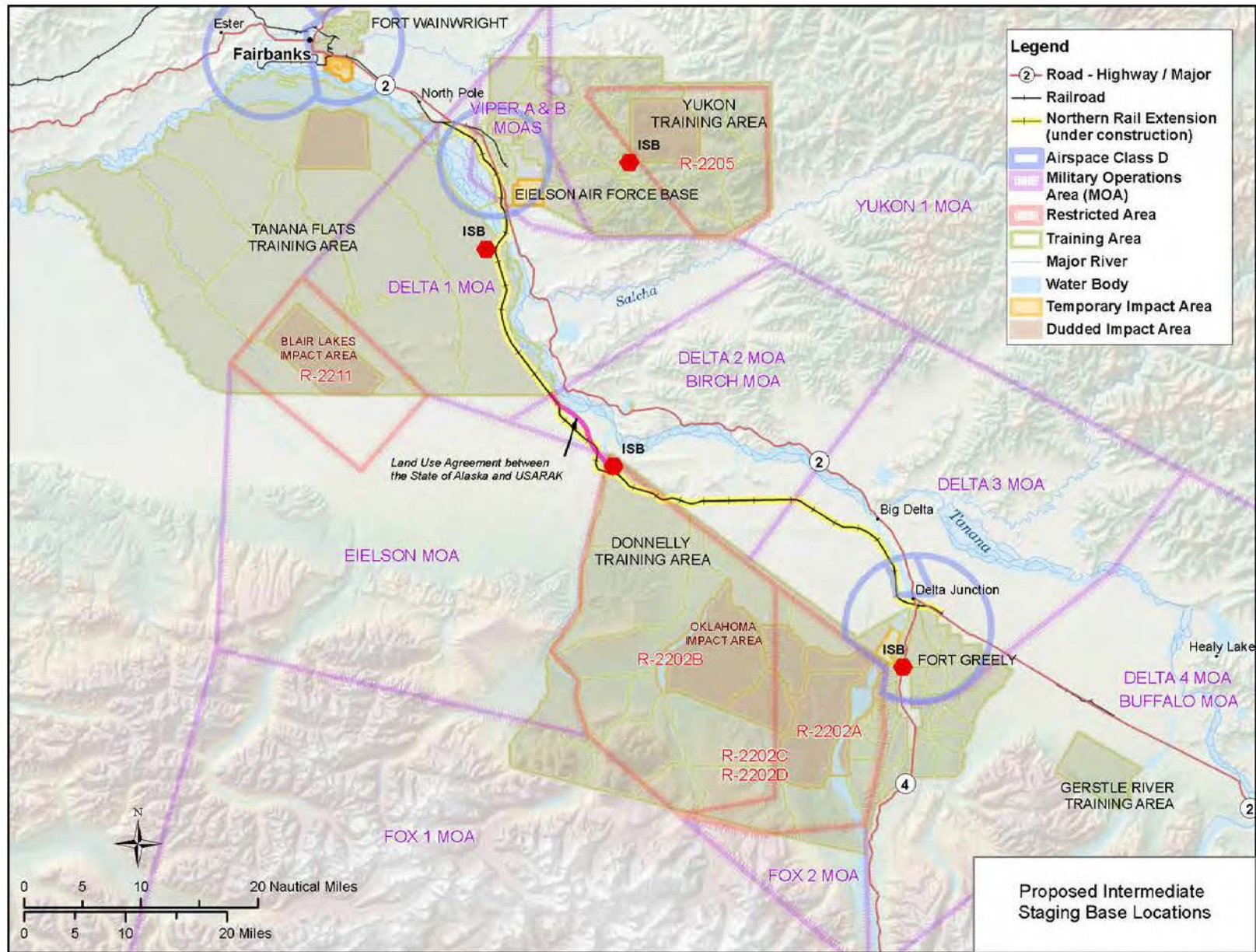


Figure 2-15. Proposed Intermediate Staging Base Locations

The ISBs will be evaluated as part of the proposed actions to provide enhanced ground maneuver space and the TFTA road access alignments. The facilities would be for JIIM use, not Army use only. Proposals call for location of these ISBs at key points along the planned rail corridor close to the planned bridge crossings. As an example, an ISB could be located near the Fort Greely Ice Bridge with a direct road link to the planned rail bridge crossing. The optimum solution would be to have ISBs and staging facilities at key locations within major maneuver areas, instead of a single large facility at a single location.

2.2.4.2 No Action Alternative

Under the No Action Alternative, existing “relocatable” ISB facilities would continue to be used. These temporary facilities do not reflect real-world, deployed-training scenarios in which the ISBs play a critical role.

2.2.5 Missile Live-Fire for AIM-9 and AIM-120

2.2.5.1 Proposed Action Alternative

For the future, the Air Force needs a fully instrumented range, which would require considerable investment.

The proposal includes an additional 100 missile exercises to be undertaken in the Temporary Maritime Activities Area (TMAA) each year. Twenty-four would include AIM-9 Sidewinder missiles and 18 would include AIM-120 AMRAAM missiles. The Navy GOA EIS covers non-Navy participants in joint training exercises, such as the Air Force, but only when joint training activities are occurring that the Navy is participating in, since the Navy is the lead agency, prepared the EIS, and prepared and maintains the permits (U.S. Navy 2011).

The AIM-9 and AIM-120 missile systems are the main air-to-air armaments for the F-22 and other aircraft training in Alaska and equipped to fire this ordnance. Effective training with these systems requires live training shots executed as part of individual pilot training and in joint training exercises with other air and ground units, such as NORTHERN EDGE. Live ordnance delivery requires use of either restricted areas with range target areas or a warning area of sufficient size to contain the explosive hazard areas associated with these missile systems. Instrumentation would be needed to control drones, radar, radio relays, and weapon telemetry and termination equipment in support of this training activity. Additional study will be necessary to determine all requirements needed to support this proposed action. Sufficient information is currently not available to fully identify and evaluate these requirements.

AIRSPACE REQUIREMENTS

Under this proposed action, the existing TMAA and Warning Area 612 (W-612) in the Gulf of Alaska (GOA) would be used by the Air Force for live delivery of the AIM-9 and AIM-120 missiles by fighter aircraft. This proposal provides that the ordnance would land in W-612. The TMAA, as shown in [Figure 2-16](#), is approximately 300 NM long by 150 NM wide, situated south of Prince William Sound and east of Kodiak Island. It extends from the surface to FL600 and is currently scheduled for use by Alaskan Command (ALCOM) to support training conducted by Navy and joint forces aircraft for NORTHERN EDGE and other exercise activities. The TMAA includes surface and subsurface operations areas and overlies a portion of W-612, over the Blying Sound. W-612 extends from the surface to FL290, and the scheduling agency for this airspace is the 3rd Wing. When not included as part of the TMAA, W-612 is used by the Air Force to conduct training in anti-air warfare (AAW) and by the U.S. Coast Guard to fulfill some of its training requirements. Most Navy training activities occur in the TMAA (Navy 2011).

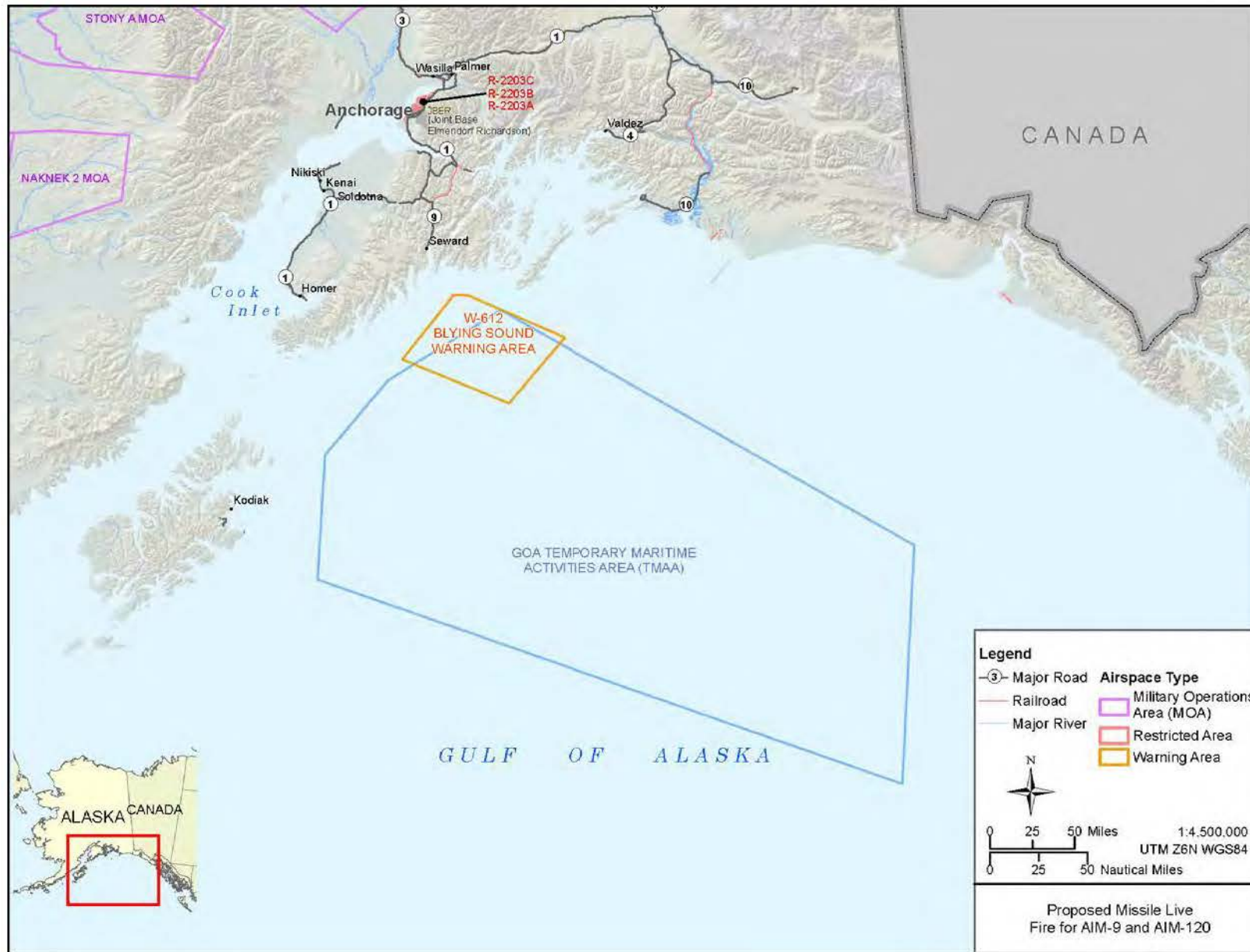


Figure 2-16. Proposed Missile Live-Fire for AIM-9 and AIM-120

AIRSPACE USE

Use of the GOA is described in the *Gulf of Alaska Navy Training Activities Final Environmental Impact Statement/Overseas Environmental Impact Statement*, which indicates training with AIM-9 and AIM-120 missile systems is conducted by FA-18, F-15, F-16, F-22, E-2C, EA-6B, and EA-18G aircraft during exercise activities (Navy 2011). The Air Force estimates that approximately 100 live-fire sorties with these systems would be conducted annually by the Air Force to meet training requirements.

2.2.5.2 No Action Alternative

The No Action Alternative would not allow for a location within Alaska in which to conduct training with the AIM-9 and AIM-120 missiles as described in the proposed action. Other locations, such as Tyndall AFB, Florida, may not prove to be effective or efficient in satisfying this training requirement.

2.2.6 Joint Precision Airdrop System Drop Zones

2.2.6.1 Proposed Action Alternative

The JPADS is revolutionizing the way the military delivers supplies and equipment to ground forces. JPADS includes an array of global positioning system (GPS) receivers and steerable parachutes to support aerial resupply training under varied, realistic conditions. JPADS is capable of hitting DZs from much higher altitudes than conventional parachute systems with critical resupply payloads. Those payloads are dropped from C-17 and C-130 fixed-wing aircraft by the Air Force.

A minimum drop altitude of 10,000 feet AGL—the optimum being at least 25,000 feet AGL—is required to give JPADS time to locate the guidance signal after the payload leaves the aircraft. Moreover, JPADS DZs require restricted areas or warning areas of sufficient size to accommodate a JPADS safety area and must comply with other risk management requirements of the Army Materiel Command. The land must also be reasonably unencumbered to ensure efficient, safe, and cost-effective equipment recovery operations in the unlikely event of equipment malfunction.

Aircrews need JPADS training under various, realistic conditions. Given the existing Army Materiel Command regulations, however, JPADS training exercises cannot be currently undertaken as part of the joint training activity at JPARC. This is due primarily to the small size of the restricted areas that currently exist at JPARC. Another problem is the cost of the dropsondes parachutes and support equipment, which limits local aircrew training to JPADS simulations. Alaska-based aircrews with the requirement to train at optimum JPADS capabilities must currently travel to Yuma Proving Ground, Arizona, to receive such training.

JPADS training should be an integral part of the JPARC joint training regimen, as a JPADS capability would modernize and otherwise enhance the conduct of joint resupply operations between the Air Force, Air National Guard, and Army. The Army has in fact already indicated a potential future requirement to employ JPADS from CH-47 rotary-wing aircraft and for parachute rigger training.

In this EIS, JPADS will be evaluated programmatically in order to better identify the relevant requirements and impacts. The evaluation will focus primarily on safety, airspace, reliability, cost, and recovery requirements. Such an evaluation will allow JPADS to be integrated into future JPARC MFEs and large joint exercises under conditions of optimum operational capability.

Key siting and training area considerations used to develop this proposal include the following:

- JPADS will primarily be used during large joint exercises in the northern training areas to resupply ground troops via Improved Container Delivery System (ICDS) and guided JPADS platforms when they become available; it will not be used for normal daily training.
- JPADS requires a restricted area (with a radius of 25 miles) for a maximum surface hazard zone.
- Training requires a landing zone that is clear of personnel and equipment because of the risk of an equipment malfunction.
- The landing zone must be located in a reasonably unencumbered area to allow for the safe, efficient, and cost-effective recovery of the JPADS-related equipment.
- The landing zone must be outside UXO-contaminated areas.
- The JPADS requirement would not require new airspace.
- No infrastructure would be required for this proposal.

JPADS PROPOSED ACTION STUDY AREAS

R-2205 in Yukon Training Area

One study area concerns the conduct of JPADS operations in R-2205 in YTA during MFEs and large joint exercises under conditions of optimum operational capability (see [Figure 2-17](#)).

R-2202 in Donnelly Training Area

A second study area concerns the conduct of JPADS operations in R-2202 in DTA outside of known duded impact areas during MFEs and large joint exercises under conditions of optimum operational capability (see [Figure 2-17](#)).

The key distinction between the alternatives is that R-2205 currently has more time available to accommodate JPADS training exercises.

2.2.6.2 No Action Alternative

The No Action Alternative would not provide the military an opportunity to undertake JPADS training exercises, which is an important part of the overall JPARC concept of operations.

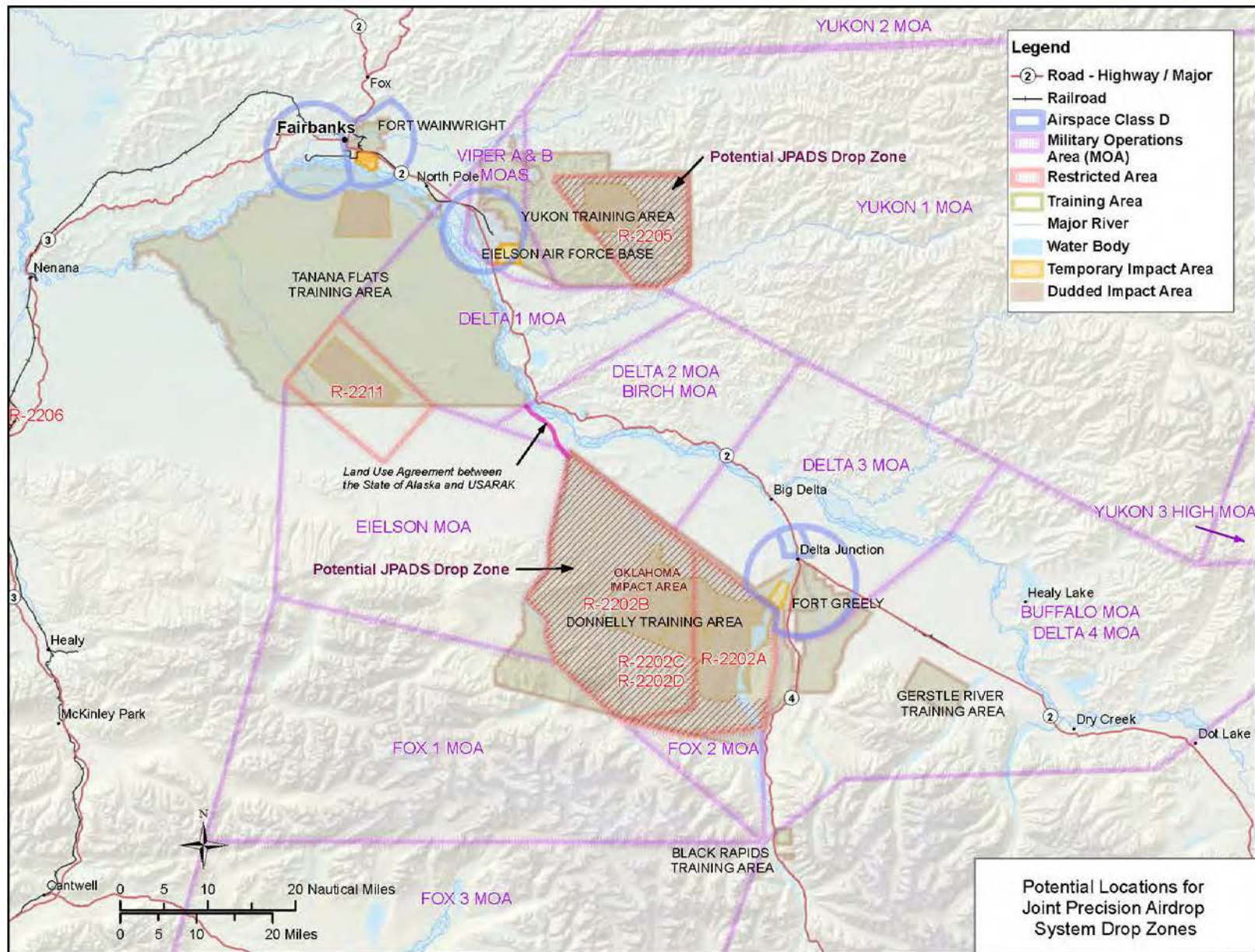


Figure 2-17. Potential Locations for Joint Precision Airdrop System Drop Zones

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Chapter 3
Affected Environment and
Environmental Consequences

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

Chapter [3.0](#) of this Environmental Impact Statement (EIS) presents the environmental consequences for each of the six definitive and six programmatic proposals described in Chapter [2.0](#). Each proposal section has a subsection for each resource. The resource subsection presents details of the affected environment needed to address specific aspects of the proposal, the appropriate impact assessment methodology, and the analysis of environmental consequences for each proposal alternative. The level of detail and analysis for each resource topic was determined by the anticipated level of impact from the screening assessment conducted for each of the proposals under evaluation in this EIS, as described in Chapter [1.0](#), Section [1.5.2](#).

In accordance with the National Environmental Policy Act (NEPA)-implementing regulations adopted by the Army and Air Force, the impact assessments for each definitive proposal alternative in this final EIS were influenced by comments received from the general public; Federal, State, and local government organizations and officials; and other interested organizations during the public scoping and draft EIS public review and comment periods, respectively.

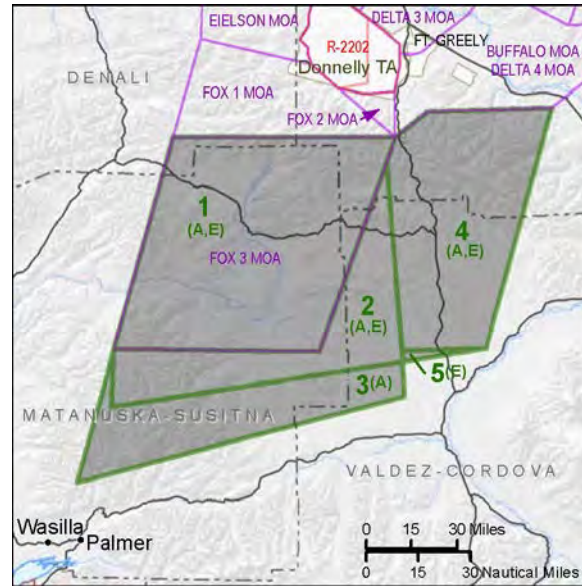
The Army and Air Force currently incorporate several existing mitigations into their ongoing mission activities using existing Special Use Airspace (SUA) and training areas affected by the JPARC proposals based on previous NEPA actions. These measures serve the purpose of reducing impacts on a range of physical, natural and human resources. Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, provides additional information about these ongoing measures and practices for the Army and Air Force in Alaska.

The Army and Air Force proponents of the JPARC proposed actions have considered additional mitigations to avoid or reduce potential impacts that may result from implementing the six definitive proposals in this EIS. Proposed mitigations are provided throughout Chapter [3.0](#) of the final EIS, immediately following the impact assessment of each resource for each proposed action, and are also compiled and listed in Appendix K. The proposed mitigations in the final EIS represent the planned final decisions by the Army and Air Force to avoid, reduce, or implement management actions to address significant adverse impacts and are included to provide the public, government agencies and officials, and other interested organizations with necessary information on the selected mitigations and to request input on these mitigations during the final EIS stage. The decision document (i.e., the Record of Decision [ROD]) for this EIS will identify mitigations that would be adopted and implemented by the Army and Air Force as part of the proposed actions. Decision makers have given serious consideration to adopting mitigations and best management practices (BMPs) that allow implementation of the proposed actions without compromising their purpose and need, while identifying and adopting mitigations to protect the environment to the degree deemed reasonable and practicable.

The ROD will not adopt mitigations for the programmatic proposals evaluated in Chapter [3.0](#). However, it may provide recommendations for future planning that concern siting, criteria, measures, and mitigations that might apply based on those used for similar actions for by the various military Services and the analysis in the EIS. These recommendations are included in the impact assessments of the various resources for the programmatic proposals and may be considered and applied in future planning for these actions.

3.1 FOX 3 MOA EXPANSION AND NEW PAXON MOA (DEFINITIVE)

The U.S. Air Force proposes to expand the Fox 3 Military Operations Area (MOA) and establish a new, adjacent Paxon MOA to provide the vertical and horizontal airspace structure needed to better accommodate low-altitude threat and multi-axis mission activities during Joint Pacific Alaska Range Complex (JPARC) training exercises. (Refer to the gray-shaded area in the map to the right.) The combined area for the expanded Fox 3 MOA and new Paxon MOA proposal overlies a total of about 7.5 million acres (11,772 square miles) of which less than 1 percent is military-owned land. Two alternatives are under consideration for this proposal. On the inset map, Alternative A is composed of areas 1, 2, 3, and 4. Alternative E is composed of areas 1, 2, 4, and 5. Alternative E reduces the amount of airspace by approximately 1.164 million acres (1,820 square miles) by moving area 3 to the north by 20 NM.



Because the proposed airspace activities pose minimal risk on the ground, the proposals do not include restrictions on surface activities. As noted in the resource analyses, only minimal effects at most would occur on ground safety, physical resources, water resources, cultural resources, and infrastructure and transportation (ground) for this proposal. Information in the following subsections is focused on resources with medium and high potential for impacts.

Following the impact assessment for each resource, the final mitigations are listed that have been selected by the Army and Air Force to avoid, reduce, or implement management actions for potential significant adverse impacts from implementing the proposed action. These are included to provide the public and other agencies with necessary information on the final mitigations proposed by the Army and Air Force.

3.1.1 Airspace Management and Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.

3.1.1.1 Affected Environment

The airspace alternatives described in Chapter 2.0, to include the expanded Fox 3 and Paxon MOAs, were designed to meet the minimum lateral and vertical parameters necessary to support the varying air-to-air and air-to-ground flight maneuvers conducted during JPARC exercises and routine training activities. The general region where airspace is proposed for the different JPARC projects includes general aviation aircraft activities, which are considered among the highest in the United States due to the heavy reliance on these operations for subsistence, medical support, and other demands. Historically, commercial, military, and general aviation operations within this region have been reasonably compatible considering the (1) current airspace structure that segregates these operations, (2) effectiveness of the Air Traffic Control (ATC) system in managing the air traffic, (3) close cooperation between military scheduling agencies and the Federal Aviation Administration (FAA) in coordinating airspace use, and (4) availability of the Special Use Airspace Information Service (SUAIS) and other available sources that provide the daily active status of the Alaska SUA.

The following sections, coupled with information provided in Appendix D, *Airspace Management*, describe representative baseline uses of all military and civil aviation activities within the region encompassing the proposed airspace for each Alternative shown in [Figure 3-1](#) and [Figure 3-2](#). These figures show the airspace proposals relative to the aeronautical features depicted on the Fairbanks and Anchorage Sectional Charts and the Alaska Instrument Flight Rules (IFR) Enroute High Altitude (H-1) Chart (FAA 2011-1, 2011-2, 2011-3).

Table B-2 (in Appendix B) defines those aviation and airspace terms most commonly used throughout this EIS. Further definitions and descriptions of all airspace classifications are included in Appendix D, *Airspace Management*.

MILITARY AIRSPACE USE

MOAs/ATCAAs

As described in Appendix B, Section B.1.1, and Appendix D, *Airspace Management*, MOAs are established at altitudes up to but not including 18,000 feet above mean sea level (MSL) (flight level [FL] 180) for the purpose of separating certain nonhazardous military flight activities from IFR traffic. The lower MOA altitude limits, such as those established in Alaska, are based on terrain elevation, underlying land uses, civil aviation needs, and other considerations that are collectively intended to minimize adverse effects while optimizing opportunities for meeting key mission training requirements. Air Traffic Control Assigned Airspace (ATCAA) areas overlie most of the Alaska MOAs from FL180 to FL310 or higher altitudes assigned by the FAA Anchorage Air Route Traffic Control Center (ARTCC), to provide the higher-altitude airspace commonly used in conjunction with the MOAs for both major flying exercise (MFE) and routine training flight maneuvers. Many mission types and flight maneuvers are typically conducted in the upper MOA altitudes and within the ATCAAs, depending on the performance capabilities and mission requirements of the individual aircraft types. As is publicized to the aviation community, the FAA has granted a Part 91 exemption that permits the Air Force and other Service participants in joint air operations to conduct lights-out training. This training is conducted in the JPARC MOAs between late October and late February and normally occurs 3 to 4 nights per week. A NOTAM is issued in advance of these operations and procedures are in place to monitor the airspace for nonparticipants and immediately cease lights-out operations if any hazard exists.

Appendix D, *Airspace Management*, Table D–3, lists the representative portions of a sortie duration in which each aircraft type typically operates within the different MOA and ATCAA altitudes noted in this table. The times spent at lower altitudes by fighter-type aircraft are typically longer in a restricted area where air-to-ground activities occur. This table reflects the portions of flight time at those lower altitudes from the perspective of the different airspace proposals presented in this EIS.

Analysis of the documented annual operations data for the more commonly used SUA areas generally indicates that about half of all annual sortie-operations are conducted during those annual 60-day, twice-daily time periods of MFEs. Other flight operations throughout the year are routine training missions, conducted an average of 240 flying days per year, generally between 7:00 a.m. and 7:00 p.m. About a fourth of those routine training operations extend into the evening hours (7:00 p.m. to 10:00 p.m.) to meet nighttime training requirements.

[Table 3-1](#) compares the representative use of the existing Fox 3 MOA/ATCAA and the existing Paxon ATCAA (FL180 and above) by MFEs only over 60 days annually versus the routine training within these two areas conducted an average of 240 days annually. As noted in this table, MFE flight activities such as the RED FLAGS typically end by 7:00 p.m., while routine training is more likely to extend into the nighttime hours (after 7:00 p.m.) The actual number of flying days and daily sortie-operations will vary from year to year, depending on such factors as budget constraints, the number of scheduled MFEs, weather conditions, and aircrew combat readiness training requirements. Routine training occurs during the MFE flying days but at reduced levels from the averages listed in [Table 3-1](#).

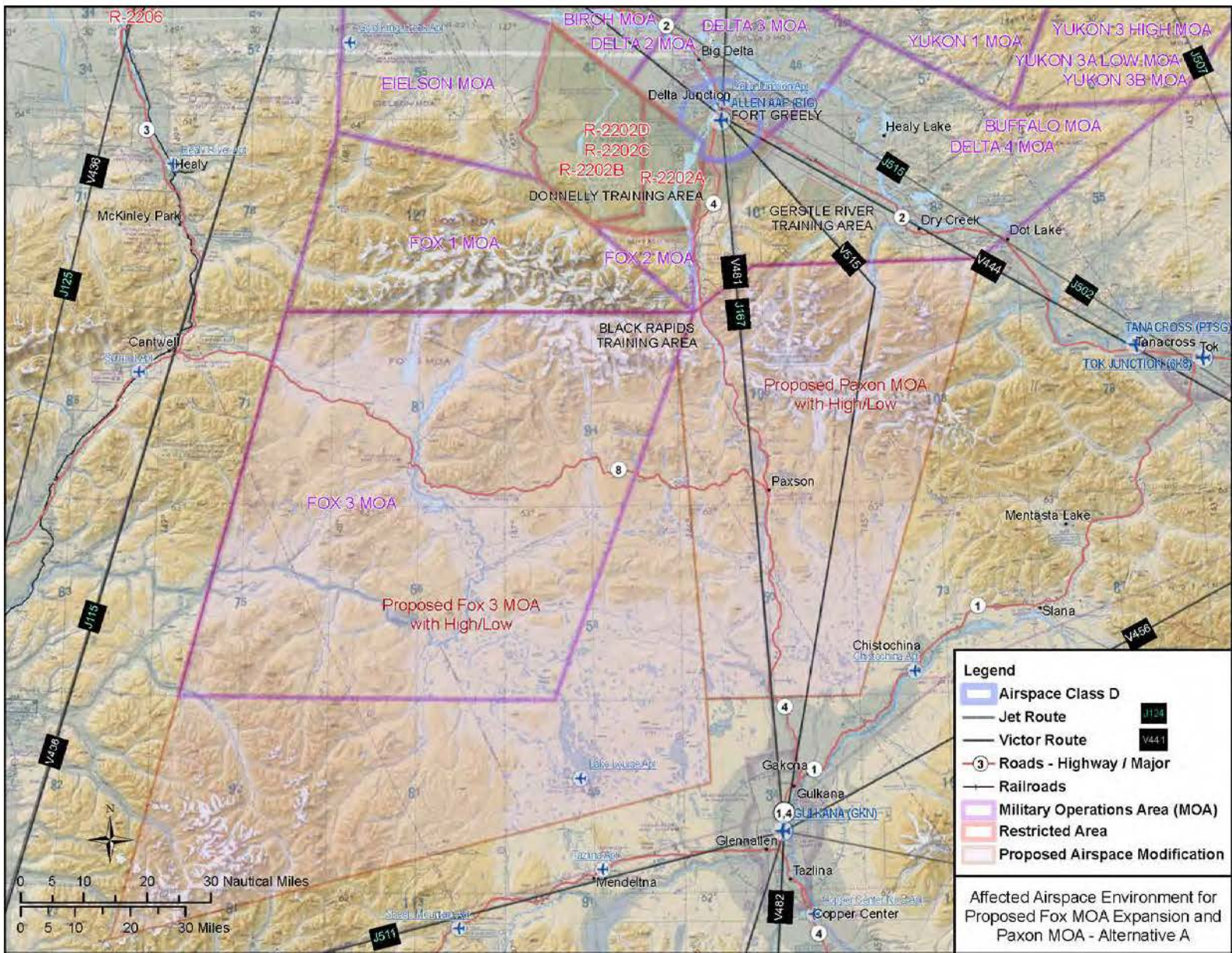


Figure 3-1. Affected Airspace Environment for Proposed Fox 3 MOA Expansion and Paxon MOA – Alternative A

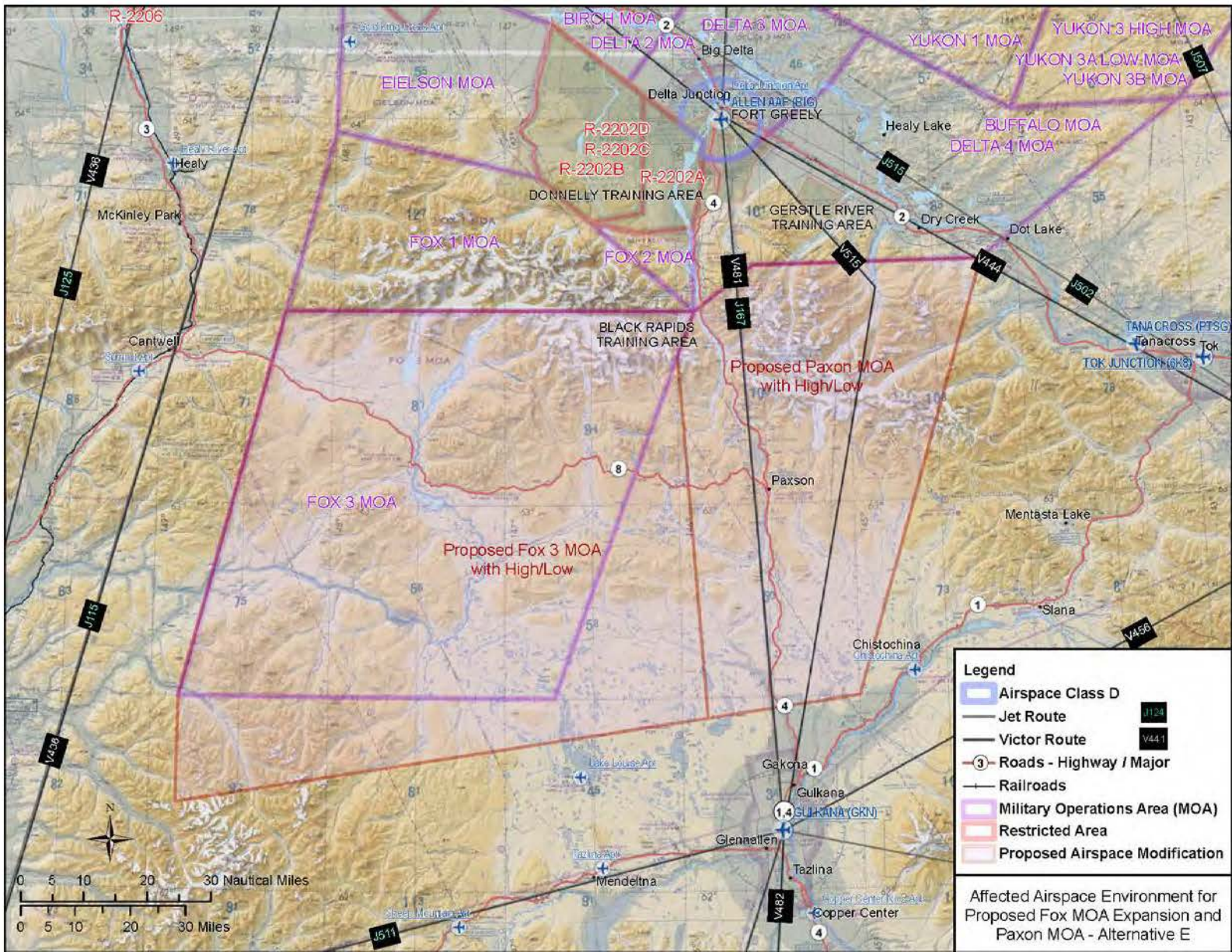


Figure 3-2. Affected Airspace Environment for Proposed Fox 3 MOA Expansion and Paxon MOA – Alternative E

Table 3-1. Representative Average Use of the Existing Fox 3 MOA/Air Traffic Control Assigned Airspace and Paxon Air Traffic Control Assigned Airspace

Flight Activity	Average Sortie-Operations							
	Annual Total		Average Daily Total		Average Daytime (7:00 a.m. to 7:00 p.m.)		Average Nighttime (7:00 p.m. to 10:00 p.m.)	
	Fox 3	Paxon	Fox 3	Paxon	Fox 3	Paxon	Fox 3	Paxon
MFE (60 flying days)	5,334	3,770	89	63	89	63	MFEs typically end by 7:00 p.m.	
Routine training (240 flying days)	4,543	3,212	19	13	14	10	5	3

Key: MFE=major flying exercise; MOA=Military Operations Area.

As discussed above, the altitudes at which aircraft typically operate during a MOA sortie mission vary by aircraft types, their performance capabilities, and combat mission roles. The altitude distributions shown in Appendix D, *Airspace Management*, Table D-3, indicate that fighter aircraft generally operate below 5,000 feet above ground level (AGL) less than 10 percent of the sortie duration time, which minimizes their mission presence within the lower altitudes normally used by Visual Flight Rules (VFR) aircraft.

The larger extent of SUA required for MFEs and the greater number of flight operations conducted during those exercise periods may require that IFR aircraft be routed around that airspace when active unless weather or other flight conditions could dictate that ATC direct this traffic through the SUA. In such cases, ATC would separate this traffic laterally and/or vertically from military aircraft operations. As the FAA has indicated and daily averages in [Table 3-1](#) help substantiate, the higher-level operations during the MFEs have the greater potential to affect air traffic in the region than the lower-density routine training operations that occur on a daily basis throughout the year.

Military Training Routes

Several Military Training Routes (MTRs) transit throughout this region, including VFR routes (VR-) used only under VFR conditions and IFR routes that may be flown under both VFR and IFR conditions. Those MTRs transiting the affected environment are depicted on Sectional Aeronautical Charts and described along with avoidance areas in the U.S. Department of Defense (DoD) Flight Information Publication AP/1B. The general location, description, and representative annual use of each MTR are included in Appendix D, *Airspace Management*, Figure D-2 and Table D-4. MTRs are low-level corridors approved for subsonic airspeeds in excess of 250 knots and are typically used for tactical training missions while transiting to and from MOAs or restricted areas. As noted in Table D-4, many of the Alaska MTRs have very limited use with the higher use VR-937 and VR-941 averaging about six operations each flying day. Nonparticipating aircraft are not prohibited from flying within an MTR; therefore, military pilots must exercise see-and-avoid procedures while conducting low-level missions along these routes. The proposed actions would not affect the current structure or use of these routes; therefore, they are not addressed any further in the Airspace Management and Use discussions, in Chapter [3.0](#).

Other Military Airspace Uses

Other airspace used for military flight training in this region includes aerial refueling routes and a low-altitude tactical navigation (LATN) area. Refueling routes (orbits) are located at higher altitudes within the JPARC airspace and are scheduled and used for refueling operations in support of both MFE and routine training missions. The LATN area, shown in Figure D-2, consists of a large rectangular expanse of airspace encompassing much of the JPARC airspace and is used mostly by C-17 and C-130 aircraft for nonhazardous, low-level training. These aircraft are limited to 300 feet AGL and above

during daylight (1,000 feet AGL at night) and airspeeds of 250 knots (288 statute miles per hour) while operating within this LATN area and are precluded from flying over the same points more than once per day. Aircraft are required to avoid airfields, towns, noise-sensitive areas, and wilderness areas by prescribed vertical and/or horizontal distances. Aerial refueling routes and LATN areas are not shown on Aeronautical Charts. The proposed actions would not affect the current structure and use of either; therefore, they are not discussed any further in the Airspace Management and Use discussions in Chapter [3.0](#).

Civil Aviation Airspace Use

Commercial and general aviation activities throughout the region include airlines, cargo, air charter, subsistence support, flight instruction, air ambulance, recreational flying, law enforcement, fire surveillance and suppression, and other such operations potentially affected by both current and proposed SUA activities. Commercial air traffic follow IFR procedures at higher altitudes while under the positive control of the ATC system; general aviation aircraft typically operate under VFR procedures at lower altitudes (below 10,000 feet MSL) while visually maintaining a safe distance from terrain, obstructions, and other aircraft. VFR aircraft may request flight following from ATC but they are not subject to the positive control of the ATC system. The following sections describe those Federal airways, jet, and Area Navigation (RNAV) routes, corridors, public airports, private airfields, and other areas used by commercial and general aviation aircraft within the affected environment. Those FAA facilities providing ATC services and positive control of SUA use in this region include the Anchorage ARTCC and the Fairbanks and Anchorage Terminal Radar Approach Control (TRACON) facilities. Discussions of the existing and proposed airspace uses considered, as appropriate, the airspace and transfer points used by these facilities to manage en route and airport air traffic.

Federal Airways

Federal airways in this region include VOR (“Victor” airways) expressed as V123; RNAV, expressed as T123; and colored airways, expressed as A12, B12, G12, or R12. Each type of route is served by a different navigational aid source for guiding aircraft along these routes: high-frequency transmitter (Victor), global positioning system (GPS) for RNAV routes, and low-frequency transmitter (colored). Unless otherwise noted, these airways extend from 1,200 feet AGL up to but not including 18,000 feet MSL, with lateral boundaries of 4 nautical miles (NM) on each side of the centerline. This places airways within the same altitude structure as MOAs and those restricted area altitudes below FL180. IFR aircraft operating along an airway are assigned altitudes in 1,000-foot increments (MSL) by ATC to maintain the required separation between these aircraft. VFR aircraft can also navigate along an airway but would do so at altitudes 500 feet above or below the IFR altitudes, so as to maintain adequate vertical and visual separation from the IFR traffic. Following an airway in this manner does not require VFR aircraft to be in contact with ATC.

[Table 3-2](#) lists those airways within the region having segments that transit through or adjacent to the existing and proposed airspace. This table includes data provided by the FAA on the average daily use and the minimum altitudes typically assigned by ATC to IFR aircraft along those route segments unless an aircraft is otherwise climbing/descending while transitioning to/from the Fairbanks and Anchorage airports. The FAA notes that the altitudes assigned along these airways can fluctuate rather significantly on a daily basis, depending on the existence of jet streams or other conditions that may affect altitude assignments. The higher-density MFE sortie-operations, during their daily exercise periods, have the greater potential to affect IFR traffic and may require that ATC reroute some aircraft around the active SUA. The FAA has indicated that, overall, the current impact of these military operations on IFR traffic flows is minimal, with the possible exception of the Delta MOA and ATC’s ability to gain immediate access to this MOA airspace if needed for priority traffic. Military activities are always suspended when necessary to accommodate those priorities. Potential impacts are minimized to the greatest extent

possible through advanced planning and scheduling of the SUA use and real-time coordination between the FAA and the responsible military range control/using agency.

Table 3-2. Federal Airway Use in the Affected Environment for JPARC Airspace Proposals

Federal Airways	Segment Proximity to Proposed Airspace	Typical Minimum Altitude Assigned by ATC (feet MSL)	Average Daily Use
V444/T232 A2/A15	Adjacent to RLOD extended R-2202 and new BAX restricted area	8,000	2
V456/G11	Adjacent to Fox 3 MOA	10,000 and above while climbing/descending from Anchorage	10 (jet stream-dependent)
V438/T227	Adjacent to Fox 3 MOA	10,000 and above while climbing/descending to/from Anchorage and Fairbanks	Up to 30
V481/T226/B25	Adjacent to/crosses new BAX restricted area subdivisions	6,000	3
V515	Crosses new Paxon MOA and new BAX restricted area	12,000	0

Key: ATC= Air Traffic Control; BAX=Battle Area Complex; MOA=Military Operations Area; MSL=mean sea level; RLOD=Realistic Live Ordnance Delivery.

Source: FAA Anchorage Air Route Traffic Control Center, June 30, 2011.

National initiatives are under way as part of the FAA NextGen program to implement greater use of RNAV airways so as to allow GPS-equipped aircraft to fly at lower altitudes to destinations without land-based navigational systems. The Alaska Airmen’s Association estimates 4,000 aircraft will have this equipment installed in the next 5 years, and the FAA is continuing to consult with Alaska aviation system users to identify and prioritize those RNAV routes that will best serve all aviation interests. The potential future effects the existing and proposed SUA may have on the NextGen initiative are yet to be determined (Alaska Department of Transportation and Public Facilities [ADOT&PF] 2010-1).

Jet and RNAV Routes

Jet routes extend from FL180 up to FL450 in Class A airspace, have no defined widths, and are used more extensively by IFR jet aircraft. Jet routes are within the same altitude range as ATCAAs and restricted airspace above FL180. Most IFR air traffic transits jet/RNAV routes at FL240 and above, which is above the altitudes used by military aircraft for any length of time during most mission activities. Use of higher altitudes is coordinated in advance with the FAA so that ATC can plan accordingly in providing the required vertical or lateral separation from the military aircraft. Advanced SUA scheduling and real-time coordination between Anchorage ARTCC, Fairbanks TRACON, and range scheduling agencies have minimized the impacts of any military operations on these routes throughout this region.

Several high-altitude RNAV (Q) routes coincide with the jet routes in this affected region to permit appropriately equipped aircraft to fly more direct routing where practical while not conflicting with jet route traffic. Flight safety along Q routes is ensured through a combination of aircraft navigation accuracy, route separation, and ATC radar monitoring and communications.

[Table 3-3](#) lists the jet and RNAV routes near or within the existing and proposed SUA that are used by IFR air traffic between the Anchorage and Fairbanks International Airports and various contiguous United States (CONUS) and international destinations. En route air traffic operates at FL180 to FL450

along these routes within the affected region, unless otherwise climbing or descending through lower altitudes while transitioning to/from the Anchorage and Fairbanks airports. The average daily use and the typical minimum altitudes assigned by ATC for each route are noted in [Table 3-3](#).

Table 3-3. Jet/Area Navigation Route Use in Affected Area for JPARC Airspace Proposals

Jet/RNAV Route	Segment Proximity to Proposed Airspace	Typical Minimum Altitude Assigned by ATC (feet MSL)	Average Daily Use
J-115/Q-43	Adjacent to west Fox 3 MOA/ATCAA boundary	10,000 to FL350 climbing/descending to/from Anchorage and Fairbanks	30-40
J-124/511	Adjacent to southern Fox 3 MOA/ATCAA boundary	Departing Anchorage up to FL380	Up to 30 jet stream–dependent
J-167	Transits Paxon ATCAA and new BAX restricted area	Climbing/descending phase of flight to FL380	3
J-502/515	Adjacent to Paxon MOA/ATCAA northeast boundary	At or above FL200, climbing/descending from Fairbanks	6-12
Northern Control Area Route – FL280 and above			
NCA-22	Transits expanded R-2205 (DMPTR)	At or above FL290	6 jet stream–dependent

Key: ATC=Air Traffic Control; ATCAA=Air Traffic Control Assigned Airspace; BAX=Battle Area Complex; DMPTR=Digital Multi-Purpose Training Range; FL = flight level; MOA=Military Operations Area; MSL=mean sea level; NCA=Northern Control Area; RNAV=Area Navigation.

Source: FAA Anchorage Air Route Traffic Control Center Letter, June 30, 2011.

As discussed for the Federal airways, the higher-density MFE aircraft operations have the greater potential for impacts on IFR air traffic flows. The FAA indicates such impacts have been minimal but, if necessary and depending on the route of flight, aircraft may be rerouted through the southern portion of the Paxon and Fox 3 ATCAAs south of the 63° North Latitude line between FL320 and FL350. Aircraft operating north of this line must remain west of the Fox and Eielson MOAs/ATCAAs (FAA 2011-4).

VFR Air Traffic

Scoping and draft EIS comments from the general aviation community indicated that many VFR flight activities occur within the affected environment in both population and tourist centers, as well as in remote areas where recreational, hunting, mining, and other special interests may only be accessible by air. Those areas identified as having considerable such VFR flight activities include but are not limited to Delta; Paxon; Lake Louise; Tangle Lakes; the Denali, Alaska, and Richardson Highways; Isabel Pass; Gulkana River; Talkeetna; the Tolsona and Crosswinds Lakes; Copper River Basin; and the Chickaloon/Sheep Mountain Pass.

The number of VFR aircraft flights operating between the various destinations and along the common flyways throughout this region is not available from the FAA or other sources. Therefore, it is not possible to reasonably quantify the higher-density operations within these areas during the different seasonal peak periods. However, it is generally known that a higher number of flights normally occur during the tourist and hunting seasons in the summer and fall. The data shown in Appendix D, *Airspace Management*, Table D-5, for the regional public airport operations provide some measure of the number of flights that may operate within those locales generally served by each airport. Scoping and draft EIS comments indicate that most general aviation aircraft operate below 3,000 feet AGL within this region.

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Federal Aviation Regulation (FAR) Part 135 requires that Air Taxi and Air Charter pilots operate at 500 feet AGL and above. A large number of these Part 135 flights operate out of Fairbanks International.

VFR aircraft commonly use flight routes that follow familiar land references to minimize travel distances and provide safe clearance from obstacles and congested areas. The Richardson Highway, Alaska Highway, and Birch VFR corridors shown in Figure B-1 (in Appendix B) enable VFR aircraft to transit through areas that separate them from military operations in the surrounding MOA airspace. Richardson Highway leads through passes that aircraft commonly use to access areas between Fairbanks and south-central Alaska. VFR aircraft also follow the George Parks Highway, and helicopters are known to conduct low-altitude flights along the trans-Alaska oil pipeline.

While VFR aircraft are not restricted from flying through an active MOA, Aircraft Owners and Pilots Association surveys indicate that more than half of VFR pilots elect to deviate around SUA (Williams 2012). The Eielson Air Force Base (AFB) and Joint Base Elmendorf-Richardson (JBER) Midair Collision Avoidance pamphlets and other informational sources emphasize the potential risks of flying through a MOA and encourage pilots to exercise extreme caution while flying within, near, or below this active airspace. Prior to entering any MOA, pilots are encouraged to obtain information regarding its active use since the status of these areas may change on a frequent basis. The scheduled and near real-time JPARC SUA status is available through the Fairbanks Flight Service Station (FSS) and its satellite FSS locations. Notices to Airmen (NOTAMs) cover airspace throughout Alaska, and the SUAIS covers areas east of Fairbanks and near Delta Junction in the Yukon 1, 2, and 3 MOAs, and in the Birch, Buffalo, Delta, and Eielson MOAs. Additionally, this service can be provided to anyone within radio range near or within R-2202, R-2211, and the MTRs that transit this area. This service assists pilots with preflight planning and helps provide situational awareness while operating within or near the SUA areas. SUAIS capabilities and the manner in which this service is provided are outlined in an FAA agreement and Air Force procedures, included as a discussion topic at Alaska Civilian/Military Aviation Council (ACMAC) meetings, and communicated through the SUAIS Pamphlet and other means. Any changes to these capabilities and the areas serviced by the SUAIS are appropriately addressed and communicated through those same venues.

Pilots may also obtain the status of JPARC SUA use through the Eielson Range Control (ERC) function. Pilots can contact the ERC directly or receive recorded information on scheduled airspace use outside of those daily periods when the ERC is staffed. Advanced information on airspace use can also be obtained by contacting the 353rd Combat Training Squadron at Eielson AFB. ERC advisory services are limited to information regarding the airspace activity status and approximate positions of known civil and military aircraft. The ERC has radar sites to provide radar coverage from Fairbanks to south of Delta Junction in the areas of the Alaska and Richardson Highways. This coverage has limited capabilities for detecting smaller aircraft not equipped with transponders.

Traffic advisories may be available through the Fairbanks or Anchorage radar ATC facilities within their respective areas of responsibility and as radio and radar coverage and controller workload permit. This advisory service requires that aircraft be equipped with a radio and transponder and pilots be familiar with the ATC radio frequencies and basic communication protocols needed to obtain this service. Controllers may be able to provide traffic advisories, safety alerts, general navigation guidance, or emergency assistance, as necessary, to increase their awareness of other air traffic in the area so that actions can be taken, as needed. Such advisory services may not always be available within all active MOAs and they do not relieve pilots of their responsibility to exercise “see and avoid” procedures, remain in visual flight weather conditions, and comply with FARs. Military pilots are also responsible for maintaining situational awareness at all times so as to remain clear of any nonparticipating aircraft observed operating through an active MOA.

Public Airports and Chartered Private Airfields

Appendix D, *Airspace Management*, lists and depicts all the public airports and chartered private airfields within approximately 25 to 30 NM of the JPARC proposed airspace, as well as the most recently reported operations data for the public facilities. Those public airports within the vicinity of the proposed Fox 3 and Paxon MOAs include Fairbanks International, Tok Junction, North Pole, Paxson, Gulkana, Copper Center, Tolsona Lake, Tazlina, Sheep Mountain, Palmer Muni, Wasilla, and Talkeetna. Of these, Fairbanks International is the only public airport having a control tower. Many of these airports are located along the Alaska, Richardson, Denali, and Glenn Highways.

Many chartered and uncharted private airfields and floatplane sites exist beneath or within the general vicinity of the proposed expanded Fox 3 and Paxon MOAs. They include but may not be limited to Summit Lake Lodge, Mankomen Lake, Crosswind Lake, Farrars, Victory, King, Shirley Lake, Rustic Wilderness, Montana Creek, Secluded Lake, Carl's Landing, Birth Creek, and Bald Mountain. These airfields are all unattended and not for public use. No operations data are reported for these airfields; however, such privately owned facilities normally have few based aircraft and flight activities. Regardless, these more-limited operations and their aviation purposes may be subject to the same potential impacts as the public airport aircraft operations in this region.

Several scoping comments referenced aviation growth in Alaska and the potential effects the proposed airspace actions may have on this growth. The September 2010 *Alaska Aviation System Plan* provides estimates on the future aviation growth within the different boroughs relative to overall U.S. statistics (ADOT&PF 2010-2). This plan suggests the total number of based aircraft in Alaska will increase from 6,076 in 2008 to 7,271 by 2030, and hours flown will increase roughly from 700,000 in 2008 to 931,000 in 2030. The average annual increase in total aircraft operations at the airports addressed in this aviation system plan is projected to be just under 0.9 percent. Operations in the Matanuska-Susitna Borough are projected to grow the most rapidly (2.3 percent), followed by Anchorage (1.7 percent) and the Fairbanks North Star Borough (FNSB) and North Slope Borough (both at 1.4 percent). The system plan also indicates that U.S. military operations have declined since they peaked in 2002 following the 9/11 attacks and that FAA national projections assume no change in the number of military aircraft operations conducted at civilian airfields. This is consistent with JPARC expectations that future military flight operations with the proposed airspace actions would not increase significantly above current representative levels. System Plan forecasts show that, despite the recent disruptions from high fuel costs and the economic recession, aviation demand in Alaska is expected to resume growth, with higher levels occurring in more urbanized areas and less growth in rural areas (ADOT&PF 2010-2).

3.1.1.2 Impact Assessment Methodology

Establishment of new MOA and restricted area airspace would require rulemaking or nonrulemaking actions, as applicable, in each case per requirements in FAA Orders 1050.1 and 7400.2 (FAA 2006, 2011-5). This requires the FAA to complete an aeronautical study that examines the potential impacts of each SUA proposal on the safe and efficient use of airspace and ATC procedures. A draft concept of the airspace proposals is typically presented to the FAA during the initial planning processes and, as feasible, the FAA study of the finalized proposals is normally performed concurrently with the draft EIS review processes. Such study includes an overview of the existing airspace structure and use and an analysis of the proposed actions on the existing air traffic environment, to include (1) IFR and VFR en route operations, (2) public airports and chartered private airfields, (3) ATC services, and (4) other airspace proposals and cumulative impacts in the region. This analysis also considers measures to mitigate or avoid, minimize, or reduce any impacts of these actions. Pending the FAA's formal analysis of each preferred airspace proposal, these criteria were used in the EIS impact assessments as a general basis for

identifying the potential environmental consequences of the JPARC proposals on all airspace uses. The FAA will consider these consequences as part of their aeronautical study analyses.

PUBLIC SCOPING ISSUES

A number of public scoping concerns raised by the general aviation community focused primarily on the adverse effects of lower-altitude military flights in the proposed new airspace, which may conflict with their present ability to transit relatively unhindered through this airspace. Such issues were included among those identified in the airspace management analyses as requiring an appropriate level of attention to mitigate potentially significant impacts.

METHODOLOGY

The potential consequences of the JPARC airspace proposal alternatives on all airspace uses were assessed by overlaying the proposed airspace on the current airspace environment, considering the competing aviation interests within each affected area, and determining the extent of any potential impacts on these competing interests.

The airspace management sections describe the current representative annual uses of the existing airspace and provide projected estimates of future activities in the proposed airspace. MFEs typically generate the highest daily use of the existing SUA and would also be projected to do the same under the proposed action. Therefore, the airspace impact analysis considers MFE operational periods as presenting the greater potential for any impacts on other airspace uses in the region. Appendix D, *Airspace Management*, Table D-2, indicates the annual representative number of sortie-operations for each MOA/ATCAA and restricted area.

As noted earlier, one aircraft sortie typically conducts mission activities within multiple SUA areas during the course of its mission and counts as a single sortie-operation within each. Therefore, the total shown for each airspace in this table reflects those multiple sortie-operations by single aircraft sortie missions. The portion of time each sortie mission spends within an individual SUA area differs depending on the flight profiles of individual mission types.

Operations data for the Federal airways, jet routes, public airports, and other airspace uses, as available from the FAA and other available sources, were also considered in assessing the extent of any potential impacts of the proposed actions and projected operations on these individual airspace uses in each affected area.

EVALUATION CRITERIA

The evaluation criteria considered the extent to which the different alternative SUA proposals could potentially affect the safe, orderly, and expeditious flow of all air traffic within each area. Pending further review of each airspace proposal by the FAA, impacts are qualified as minimal where there would be little or no adverse effects on other airspace uses; moderate where there may be a potential for adverse but not significant adverse impacts such as some measurable flight delays or diversions; and significant where there is a high probability of limiting or restricting other airspace uses during key periods when greater measures would be needed to mitigate such impacts. Any potential effects on flight safety and operations were considered to be a direct impact, regardless of the level of significance. Indirect impacts may involve increased time and attention to flight planning efforts, greater fuel/maintenance costs, and those factors that could necessitate a delay or rerouting of IFR or VFR air traffic around an active MOA/ATCAA and/or restricted area.

As noted previously, impact assessments are based on a more general perspective, whereas the FAA aeronautical study will explore the preferred airspace alternative actions in greater depth to determine the significance of any specific impacts on other airspace uses and what measures or proposal modifications can be considered to mitigate such impacts.

The airspace discussions make reference to potential impacts on civil and military air traffic when SUA is activated. Activation refers to those designated time periods that have been coordinated and scheduled for individual SUA use with the controlling FAA facility. Scheduled SUA activation periods are publicized in NOTAMs and the SUAIS and provided as real-time ATC and FSS advisories to ensure public awareness of military activities in this airspace.

The Anchorage ARTCC manages and controls joint use of the JPARC airspace, when activated, through standard ATC separation practices and the processes stipulated in a Letter of Agreement or Memorandum of Understanding (MOU) with the responsible Air Force or U.S. Army Alaska (USARAK) agency. Therefore, altitude restrictions may be placed on military aircraft within a MOA or ATCAA, as necessary, to accommodate both transiting civil IFR traffic and military training within that airspace. Any procedures and practices to mitigate the potential impacts of an airspace proposal on all airspace uses would be examined by the FAA, Air Force, USARAK, and other affected interests, as appropriate, in the EIS and aeronautical study review processes.

3.1.1.3 Environmental Consequences

3.1.1.3.1 Alternative A

The potential consequences of this proposal consider how the differing military activities and their typical operating characteristics may affect civilian aviation operations in this affected area. In all cases, FAA and military coordination procedures must ensure that priority is given to any wildland fire, Medevac, emergency, or other critical service flights requiring access through any airspace environment, both existing and any future areas that may be established as a result of the JPARC proposals.

MILITARY AIRSPACE USE

Proposed MOA/ATCAA Use

As noted previously, the annual number of aircraft sortie-operations would not increase significantly above the representative baseline levels described in Section [3.1.1.1](#) for both MFEs and other routine training. This baseline is inclusive of up to six annual MFEs, routine training operations, and the recent basing of six additional F-22s concurrent with the drawdown of F-15 aircraft at JBER. With the expanded Fox 3 MOA being closer to JBER, it is estimated that about half of the current Stony MOA fighter sorties would be conducted in the Fox 3 MOA/ATCAA if this proposal is implemented. [Table 3-4](#) reflects that adjustment for the estimated annual and daily use of the Fox 3 and Paxon MOAs under this proposal. Since both the Fox 3 and Paxon MOAs would be used to accommodate most all training activities, it is assumed under a maximum case scenario that MFE and routine training sortie operations would be generally the same within both MOAs, as reflected in [Table 3-4](#). Under the Night Joint Training (NJT) proposal, MFE (RED FLAG) sessions would be conducted during the extended hours up to 10 nights annually with the number of sortie operations being about half of those shown in this table for the daytime operations.

As discussed in Chapter [2.0](#), the intent of this proposal is to provide a greater expanse of airspace in which to more widely diversify the mission flight profiles that would be more characteristic of a combat environment. With no significant increase in representative operational levels in this airspace, the higher

density MFE aircraft sorties would be dispersed over a greater area on a daily basis than what currently occurs.

Use of the proposed airspace complex for the six annual MFEs would be planned, coordinated, and publicized well in advance through those means currently used to ensure all concerned are informed of the scheduled MFE periods and the MOAs and restricted areas to be used for these exercise activities. As noted in the Chapter [2.0](#), the routine training operations conducted throughout the year in the proposed Paxon MOA would be limited to 14,000 feet MSL and above. This MOA status would be available through the SUAIS and other means currently used to inform civilian pilots of Air Force flight activities within the central Alaska SUA.

Table 3-4. Estimated Average Use of the Proposed Fox 3 and Paxon MOAs/Air Traffic Control Assigned Airspace

Flight Activity	Estimated Average Aircraft Sortie Operations (includes Stony MOA portion)							
	Annual Total		Average Daily Total		Average Daytime (7:00 a.m. to 7:00 p.m.)		Average Nighttime (After 7:00 p.m.)	
	Fox 3	Paxon	Fox 3	Paxon	Fox 3	Paxon	Fox 3	Paxon
MFE (60 flying days)	6,009	6,009	100	100	100	100	50 plus during proposed NJT MFEs	
Routine training (240 flying days)	5,118	5,118 ¹	22	22 ¹	16	16 ¹	6	6 ¹

¹ Paxon routine training sorties limited to 14,000 feet MSL and above.

Key: MFE=major flying exercise; MOA=Military Operations Area; MSL=mean sea level; NJT=Night Joint Training.

Other Military Airspace Uses

As noted in Section [3.1.2](#), it is not anticipated that the structure and use of the MTRs, LATN areas, or ARs would be affected by any of the proposed JPARC airspace actions. Therefore, they are not included in the discussion of environmental consequences for these proposals.

CIVIL AVIATION AIRSPACE USE

The extent to which Alternative A may affect civil aviation airspace use would vary with the locations, altitudes, and times of day both higher-density military and civil aviation activities would occur within the areas affected by this proposal, as addressed below.

Federal Airways

The Federal airways potentially affected by this alternative and their reported average use are described in Section [3.1.1.1](#) and shown in [Figure 3-1](#). The aircraft altitude distributions shown in Appendix D, *Airspace Management*, Table D-3, indicate that approximately 30-40 percent of fighter aircraft and up to 50 percent of cargo aircraft sortie missions would typically operate within those altitudes used by airway traffic (below FL180). The following addresses the potential impacts of the proposed action on each airway, considering the distances and altitudes needed to separate airway traffic from MOA operations.

- V 438/T 227 is approximately 15 NM west of and parallel to the existing and proposed Fox 3 MOA boundaries with the Minimum Enroute Altitude (MEA) being 10,000 feet MSL along this segment. The MEA is the lowest published altitude along a route segment that assures obstacle clearance and radio navigation signal and ATC communications coverage. FAA data indicate an average of up to 30 IFR flights transit this airway on a daily basis. When active, the

Fox 3 MOA should have minimal impacts on the en route airway traffic given the procedures currently used by ATC to separate this airway traffic from the Eielson, Fox 1, and Fox 3 MOAs. However, the lower portion of this proposed airspace may infringe upon that airspace currently used by the Anchorage ARTCC or Approach Control to route climbing/descending air traffic between this airway and Anchorage International or other destinations within this region.

- V 456/G11 is approximately 10 NM south of and parallel to the proposed Fox 3 MOA southern boundaries with an MEA of 10,000 feet MSL along that segment. FAA data indicate an average of 10 daily IFR flights transit this airway segment. When active, the closer proximity of the southern Fox 3 MOA boundary to this route may have a moderate impact on the airspace needed by ATC to route climbing/descending air traffic to/from Anchorage, Gulkana, and other destinations.
- V 481/T 226/B 25 transits the airspace proposed for the Paxon MOA and would be approximately 10 NM east of and parallel to the proposed Fox 3 eastern boundary. The MEA for this segment is 12,000 feet MSL with altitudes as low as 6,000 feet MSL being assigned by ATC, as needed, for the 3 average daily flights that transit this airway and/or are transitioning to an airport within the region. Use of the Paxon MOA during the MFE active time frames may have a significant impact by closing these low altitude routes when this MOA is active, while impacts of the expanded Fox 3 MOA use on this route would be minimal.
- V 515 also transits the proposed Paxon MOA with an MEA of 12,000 feet MSL. FAA data indicate there is very little use of this airway, therefore, any impacts of the active Paxon MOA on V 515 may be minimal.
- V 444/T232/A2/A15 borders the northeast corner of the proposed Paxon MOA and has an MEA of 5,000 feet MSL along this segment. FAA data indicate an average of 3 daily IFR flights transit this airway with altitudes assigned by ATC being at 8,000 feet MSL and above. The active use of the Paxon MOA may have a moderate impact on this airway use.

Overall, this alternative may have moderate to significant impacts on airway IFR traffic and/or the airspace used by Anchorage ARTCC and/or Fairbanks TRACON to transition arriving/departing air traffic between any one of these airways and an airport environment. The FAA has expressed concerns that the Paxon MOA, when active, would result in the closure of three airways (V481, V515, and V444) forcing small or low flying aircraft to fly VFR between Gulkana/Northway to Delta Junction/Fairbanks. This may be problematic if these aircraft are unable to circumnavigate the MOA due to the high terrain in the surrounding area. The lack of low altitude radar and frequency coverage in some areas could also affect ATC's ability to track/monitor those smaller or low flying aircraft transiting between airports in this region while operating off the established airways.

The extent of any impacts would depend on the daily use of the expanded Fox 3 and new Paxon MOAs relative to the airway traffic and those options available for ATC to separate this IFR traffic from the active MOA airspace and military operations. Those airways transiting the Paxon MOA would be most impacted with their closure during the higher density MFE and routine training periods that could require those airway flights to be delayed or rerouted, as necessary, to avoid this active airspace. Advanced planning and real-time coordination between military scheduling agencies and the FAA would continue to be used to minimize impacts during those more problematic periods. The specific impacts on air traffic flows and ATC system capabilities and those measures that could be considered for minimizing those impacts on all airspace uses will be further examined by the FAA and the Air Force in the FAA's aeronautical study if this alternative is selected in the Record of Decision for inclusion in the aeronautical proposal.

Jet/RNAV Routes

Use of the jet routes potentially affected by this alternative are noted in Section [3.1.1.1](#) and shown in [Figure 3-1](#). Those military aircraft operating at FL180 and above in the ATCAAs overlying the existing/proposed MOAs present the greater potential for any impacts on this route traffic. The aircraft altitude distributions shown in Appendix D, *Airspace Management*, Table D-3, indicate the typical use of those higher altitudes between FL180 and FL270 by fighters and other aircraft operating within the jet route structure.

The following describes the potential impacts the proposed MOAs/ATCAAs may have on those routes in closest proximity to this airspace:

- J167 transits above the proposed Paxon MOA through the existing Paxon ATCAA and approximately 10 NM east of the proposed Fox 3 MOA/ATCAA eastern boundaries. FAA data indicates a daily average 3 IFR flights operate on this route at altitudes up to FL380 while en route or climbing/descending to/from the Anchorage and Fairbanks International airports. This airspace proposal would not impact the higher altitude en route traffic that would be above and clear of the MOA/ATCAA operations (generally FL270 and below) but may have some impact on those aircraft that would be either transiting or climbing/descending through those lower altitudes. In such cases, there may be minimal impacts on this air traffic if necessary for ATC to restrict their altitude or alter their route of flight to any lengthy extent to avoid the military operations in the Paxon and adjacent Fox 3 MOA/ATCAA. Those procedures and practices currently used by Anchorage ARTCC to separate route traffic from the Paxon ATCAA operations may continue to be an option for minimizing any impacts from this proposal.
- J124-511 transits south of and parallel to the southern boundaries of the proposed Fox 3 MOA/ATCAA. FAA data indicates an average of up to 30 IFR flights transit this route daily with FL380 being the typical minimum altitude assigned by ATC for departing Anchorage airport traffic. Activation of the Fox 3 MOA/ATCAA would have minimal impacts on this higher altitude route traffic while there may be moderate impacts on the altitudes and airspace bordering the Fox 3 MOA/ATCAA southern boundary used by ATC to transition climbing/descending air traffic between this jet route and Anchorage International or other regional airports.
- J-115/Q-43 transits approximately 20 NM west of the existing and proposed Fox 3 MOA/ATCAA. FAA data indicates an average 30-40 daily IFR flights transit this route at altitudes up to FL350 while en route and at 10,000 feet MSL and above when climbing/descending to/from the Anchorage and Fairbanks airports. While this route is distant from the proposed MOA/ATCAA boundaries, there are FAA concerns over this MOA expansion potentially affecting airspace currently used to transition air traffic into the Anchorage and Fairbanks areas. Therefore, this proposal may have minimal impacts on this air traffic flow, depending on the altitudes/airspace needed by ATC to route this air traffic during the active MOA/ATCAA periods. Measures currently used by Anchorage ARTCC to manage and separate this traffic from the Eielson, Fox 1, and Fox 3 MOAs/ATCAAs may minimize such impacts from this proposal.
- J-502/515 transits adjacent to the northeast corner of the proposed Paxon MOA and the existing Paxon ATCAA that overlies this proposed airspace. FAA data indicate an average of 6-12 daily IFR flights transit this route at altitudes at FL200 and above unless otherwise climbing or descending through lower altitudes when transitioning to/from Fairbanks International. Activation of this proposed MOA should have minimal effects on this route traffic considering those measures currently used by the Anchorage ARTCC to separate this route traffic from the Paxon ATCAA operations. Operations in this ATCAA would not be increasing significantly beyond current representative levels.

Overall, this alternative may have minimal to moderate impacts on those jet/RNAV routes transiting within or in close proximity to the expanded Fox 3 and Paxon MOA/ATCAA boundaries. The FAA has noted that the proposed southern boundaries of the Fox 3 MOA/ATCAA could impact the sequencing of north and southbound air traffic flows between the Anchorage and Fairbanks areas whereas northbound traffic is sequenced to east of V438 and J115 while southbound traffic is sequenced between Talkeetna and Anchorage. As indicated above, the FAA also has concerns over the more limited airspace that would be available between the southern Fox 3 boundary and Anchorage TRACON's northern terminal airspace boundary for spacing and sequencing air traffic between Anchorage and Gulkana.

The extent of any potential impacts would depend on the daily MFE time periods and altitudes utilized for the Fox 3 and Paxon MOA/ATCAA activities relative to the IFR en route and airport transitioning air traffic, and those ATC options for separating this air traffic from the Fox 3 and Paxon MOA/ATCAA military operations. Currently, commercial flights can be routed south of the 63 degree latitude corridor between FL320 and FL350 to remain clear of the Fox 3 MOA/ATCAA operations. The continued use of this corridor and/or other means currently used to separate jet/RNAV route traffic from military operations will be examined in the FAA's aeronautical study of the preferred airspace alternative.

VFR Air Traffic

The majority of the high density VFR air traffic that flies through this affected environment generally operates at 5,000 feet AGL and below along those common flyways that provide good ground visual references and direct routing that keep these aircraft clear of high terrain, obstacles, and, as desired, active MOA airspace. The SUAIS and other standing procedural and communicative measures have given civil aviation pilots a reasonable sense of awareness as to where and when military activities are being conducted in the current SUA with relatively few issues with this compatible airspace use. However, scoping concerns strongly suggest this would change with the proposed airspace action. Expanding the airspace in this manner with much lower altitudes would require increased vigilance by both military and civilian pilots to maintain continued awareness of each other's presence while sharing this MOA airspace when it is in use. The Air Force is sensitive to that concern and would limit activation of the low sector to those mission needs that require the use of those lower altitudes. As proposed, only the Paxon high altitude sector would be utilized for routine training while MFEs would be conducted in both the low and high sectors. Scheduled or real-time use of the low and high altitude sectors would be publicized through the SUAIS and other advisory services.

The potential for any interactions between military and VFR aircraft in the proposed Fox 3 and Paxon MOAs would depend on the daily densities, time frames, altitudes, and locations of both the military and VFR aircraft operations. While daily VFR flights through this affected airspace cannot be characterized or quantified, representative MOA use provides some estimate of the daily number of military aircraft that would occur in this airspace. The daily averages listed in [Table 3-4](#) coupled with the typical MOA altitudes flown by the different aircraft types (shown in Appendix D, *Airspace Management*, Table D-3) provide a general sense of the military operations that may be encountered at the lower altitudes used by the vast majority of VFR air traffic (typically at 10,000 feet AGL and below). A-10s, helicopters, and cargo aircraft (C-130 and C-17) spend a greater portion of a sortie mission at those lower altitudes while only about 10–20 percent of a fighter aircraft sortie mission is conducted at those altitudes. Again, routine training sorties in the Paxon MOA would be well above (14,000 feet MSL and above) those altitudes flown by the vast majority of VFR air traffic outside those periods when MFEs are not in progress.

Nighttime routine training sortie-operations would be considerably less (about one-fourth of the daily averages) during those time frames when VFR operations are also much reduced. While these operational averages will vary on a daily basis, they suggest that relatively few daily flights would be flown at the lower altitudes over the more widely dispersed airspace proposed under this alternative, thus minimizing interactions between military and VFR aircraft within this expanded MOA airspace. Existing mitigations

along with other similar measures would be considered by the Air Force, as necessary, to avoid airports or other high use air traffic areas that could be impacted by lower altitude military flights in those areas.

Information regarding the scheduled and real-time use of the proposed airspace would be available through the SUAIS, ERC, NOTAMs, ATC and FSS to increase pilot awareness of the daily flight activities. All pilots are encouraged to make maximum use of these resources to help increase flight safety and minimize flight risks for all concerned. VFR pilots are also always encouraged to file VFR flight plans to increase general awareness of their flight activities. It is contingent upon all civil and military pilots during MOA operations to exercise greater situational awareness using see and avoid practices. Military pilots use both visual observation and onboard radar systems that “see” transponder equipped aircraft well beyond visual range so as to take necessary actions to avoid any nonparticipating aircraft within this airspace. Because aircraft without transponders cannot always be observed by onboard radar systems, FAA and other aviation safety concerns encourage VFR pilots to equip their aircraft with transponders.

While VFR aircraft can operate through an active MOA, scoping comments and other informal indicators suggest that an increasing segment of this aviation community may elect to avoid an active MOA. This may create impacts if these pilots would cancel or delay their flights, or otherwise fly increased travel distances around an active MOA to avoid this active airspace. Taking such actions may particularly impact those business and other aviation interests having a timely need to provide subsistence or other support to areas affected by this proposed airspace, while active. Such impacts resulting from a VFR pilot’s decision to avoid an active MOA may be difficult to mitigate.

Several standing procedures and practices have been implemented as a result of the 1997 *Final Environmental Impact Statement, Alaska Military Operations Areas (Final Alaska MOA EIS)* ROD mitigations and other initiatives to better accommodate VFR air traffic in this region to include designated corridors, no-fly zones, and avoidance areas for the common VFR routes, airfields, and other flight sensitive locations used by VFR air traffic (Air Force 1997-1). These mitigation measures and other actions would be considered by the Air Force in conjunction with concerned stakeholders to identify additional actions that could be taken to minimize any adverse effects of this airspace proposal on general aviation. The ACMAC and other stakeholder outreach initiatives have been and will continue to be a key means for addressing airspace concerns affecting the safe, compatible use of the airspace in this region.

Public Airports and Private Airfields

Appendix D, *Airspace Management*, Table D-5 lists the public airports and charted private airfields/airstrips in the affected environment and Section [3.1.1.1](#) noted those that are in close proximity to and potentially affected by the proposed Fox 3 and Paxon MOAs. It is recognized that other uncharted private airstrips exist in the affected region that could not be included in this table. While many of these charted and uncharted airfields have few based aircraft and reported operations, and no instrument capabilities, each serves an important purpose in serving the varying aviation needs of rural Alaska. The 11th Air Force (11th AF) Airspace Handbook contains flight restrictions to include a 3 NM or 1,500 feet AGL avoidance (typical) from those airfields/airstrips that underlie the existing airspace as also included in Appendix D (Air Force 2006-2). The 11th AF Airspace and Range team may add, increase, reduce, or remove avoidance areas identified in the Handbook as situations dictate (e.g., a mine and its air operations cease to exist). Reports of any observed intrusions on these avoidance areas are strongly encouraged so that appropriate actions can be taken to reinforce pilot compliance with these restrictions. The Air Force would coordinate with airport owners/operators and the FAA to consider any additional flight restrictions that may be required to minimize any effects of this proposed airspace expansion on airfield arrival/departure operations and traffic patterns. As discussed previously, the ACMAC, Alaska Airmen’s Association, and other concerned stakeholders would continue to be informed on JPARC airspace matters while seeking means to minimize any effects on airport operations.

3.1.1.3.2 Alternative E (Preferred Alternative)

The proposed airspace structure shown in [Figure 3-2](#) for this alternative is reduced in size by approximately 1.164 million acres (1,840 square miles) from that proposed for Alternative A. As shown in this figure, the proposed Paxon MOA southern boundary is adjusted slightly to the south so as to be aligned with the overlying Paxon ATCAA boundary and the Fox 3 MOA/ATCAA boundary. This provides a more uniform alignment for both military and civil aviators to be aware of while operating/navigating along this MOA boundary.

This alternative provides a greater distance between the proposed Fox 3 MOA and the airways/jet routes, airports, and population centers located south of this proposed airspace. The distance between the proposed Paxon MOA boundary and the Gulkana airport would be slightly reduced under this alternative, as addressed further in this analysis.

MILITARY AIRSPACE USE

Proposed MOA/ATCAA Use

The estimated use of the proposed expanded Fox 3 and new Paxon MOAs and the overlying ATCAAs for both MFE and routine training activities would be the same as described for Alternative A and listed in [Table 3-4](#). As noted previously, future operations are not expected to increase significantly above current representative levels. This alternative would also include relocating about half of the JBER sorties currently conducted in the Stony MOAs to the expanded Fox 3 and Paxon MOAs, when prudent to do so, to reduce the transit time and distance for training activities that can be accomplished more effectively within the expanded MOAs.

As noted for Alternative A, MFE activities would occur in both the Fox 3 and Paxon low and high sectors for a maximum of 60 days per year while routine training in the Paxon MOA would be strictly limited to 14,000 feet MSL and above during the 240 average annual flying days.

CIVIL AVIATION AIRSPACE USE

This alternative would have reduced potential effects on civil aviation airspace use than discussed for Alternative A, considering the greater separation this proposal has from the higher aviation use areas, as noted below.

Federal Airways

The airways potentially affected by this proposal include V481/T 226/B 25, V515, and V444, which transit within or near the airspace proposed for the Paxon MOA. Although FAA data indicates there are relatively few daily flights along these routes, they could not likely be used during those two daily 2.5-hour timeframes when MFE activities are conducted (up to 60 days per year). Use of these airways during other times of the year when routine training is conducted may be limited to 13,000 feet MSL and below, as necessary, to maintain required IFR vertical separation from the MOA operations. The extent to which this may impact airway use during the daily training periods would depend upon ATC's need to assign higher altitudes to IFR aircraft transiting these routes. The FAA's concerns noted in Alternative A on the effects that closure of these three airways may have on air traffic transiting between Gulkana/Northway and Delta Junction/Fairbanks would still exist under this alternative.

The airways to the west and south of the existing/proposed Fox 3 boundaries should be sufficiently distant and separated from those airways so as to have minimal effects on their use. The more northerly distant proposed boundary should also not have impacts on the terminal airspace used by the FAA to separate and sequence airport air traffic through this area.

Overall, the minimal to moderate impacts that this alternative may have on the airway structure is more limited to those routes potentially affected by the proposed Paxon MOA.

Jet/RNAV Routes

The jet/RNAV routes potentially affected by this alternative are J-167 and J-502/515, which transit through or adjacent to the existing Paxon ATCAA that overlies the proposed Paxon MOA. As discussed for Alternative A, use of the Paxon MOA/ATCAA may have some minimal effect on those lower altitudes (FL180–270) that ATC may assign while climbing/descending air traffic through this airspace. Otherwise, en route traffic operating at higher altitudes (above FL270) would normally be above and unaffected by Paxon ATCAA operations. It is not anticipated that military aircraft operations would increase significantly with this proposed action, to include routine training activities at 14,000 feet MSL and above. Therefore, any effects that the proposed Paxon MOA use may have on the jet/RNAV routes should not differ from that experienced by ATC on the current daily use of the Paxon ATCAA for both MFE and routine training flight activities.

The adjusted Fox 3 MOA boundary proposed for this alternative is sufficiently distant from the jet routes that were discussed in Alternative A as being potentially affected. Therefore, the proposed Fox 3 MOA expansion and proposed Paxon MOA should have minimal impacts on the jet/RNAV route structure in this region.

VFR Air Traffic

The potential impacts that this alternative would have on VFR air traffic would be generally the same as discussed for Alternative A but to a somewhat lesser extent, considering the reduced area encompassed by the proposed Fox 3 MOA. The southern boundary of this proposed MOA would be more distant from those areas between Glennallen and Anchorage where much of the VFR traffic typically operates and would be unaffected by this alternative. VFR aircraft that have a need to travel to the more remote areas within the Fox 3 MOA airspace may be affected by the presence of MFE and routine training operations at those lower altitudes. Impacts on VFR aircraft operating within the proposed Paxon MOA would be the same as discussed for Alternative A while MFE operations are in progress. Routine training flights at 14,000 feet MSL and above within this MOA should have no impact on VFR traffic at the lower altitudes typically flown by those aircraft.

As discussed previously, the potential for any military/civil aircraft interactions could be reduced through preflight planning and use of the SUAIS, ERC, NOTAMs, and other advisory services provided by ATC to avoid those times that the proposed airspace high/low sectors are activated. Any changes or enhancements to these service capabilities are addressed, as appropriate, through FAA agreements, Air Force procedures, and public notifications.

Public Airports and Private Airfields

The proposed Fox 3 MOA under this alternative would be more distant from public airports and private airfields that would be potentially affected by the Alternative A proposal. Therefore, many of the airports/airfields listed in Table D-5 of Appendix D, *Airspace Management*, for that area should not be adversely affected by this alternative. The southern Paxon MOA boundary would be somewhat less distant from the Gulkana airport than proposed for Alternative A but would still be clear of the Class E controlled airspace containing instrument procedures for this airfield.

As noted for Alternative A, the Air Force would coordinate with airport owners/operators and the FAA to discuss any flight restrictions or other considerations that may be required to minimize any adverse effects that this proposal may have on airfield arrival/departure operations and traffic patterns.

3.1.1.3.3 No Action Alternative

This alternative proposes no changes to the current boundaries and altitudes of the existing Fox 3 MOA. As no significant increases in the current military flight operations are projected for the future, it is not expected that the No Action Alternative would affect the current military and civil aviation airspace uses within the region, and they would remain as under current existing conditions.

3.1.1.4 Mitigations

The preceding analysis of effects on airspace management has identified potential adverse impacts on civil aviation airspace use. The following mitigations are proposed to manage and reduce these impacts.

- **Special Use Airspace Information System.** Continue SUAIS in all areas where radio coverage exists; this includes a majority of the area beneath the proposed Fox 3 and Paxon MOAs. The SUAIS Letter of Agreement with the FAA will be updated to include current radio sites and any new MOAs to be covered by the system. The effectiveness of this mitigation in maintaining a safe, usable airspace can be seen in today’s northern MOAs, which have minimum altitudes even lower than proposed here. The Air Force safely shares large expanses of airspace with civilian aviation utilizing the communication network known as SUAIS. Proposed new, low MOAs already have large areas of SUAIS coverage that would enable safe, simultaneous use of these new airspaces by civil and military aircraft.
- **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.

3.1.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.1.2.1 Affected Environment

The areas beneath the proposed Fox 3 MOA expansion and new Paxon MOA are predominantly rural with very low population density, and noise levels can be assumed to be low. Ambient noise in a quiet residential setting is approximately 45 decibels (dB) day-night average noise level (DNL) (EPA 1974), while sound levels in geographically remote areas can be much lower. The vast majority of the affected environment consists of rural areas and areas with no permanent human habitation in which ambient noise levels (i.e., noise not generated by military operations) would be below 45 dB DNL. Sound sources in geographically remote areas include natural sounds, such as wind and bird calls, and occasional noise generated by vehicles, such as snowmachines and small aircraft.

Under representative baseline conditions, time-averaged subsonic noise level (i.e., the onset rate–adjusted day-night average sound level, or “ L_{dnmr} ”) beneath the Fox 3 MOA/ATCAA is approximately 39 dB. The area that would be beneath the Paxon MOA under the proposed action is currently beneath the existing Paxon ATCAA. Baseline noise levels beneath the ATCAA are approximately 37 dB L_{dnmr} . The Paxon

ATCAA has a “floor” altitude of 18,000 MSL and is used for routine and exercise operations. Aircraft training operations do not normally occur after 10:00 p.m.

[Table 3-5](#) lists noise levels associated with several representative military aircraft types, as well as a generic single-engine aircraft typical of civilian aircraft operating in the region. Under baseline conditions, the area beneath the Paxon ATCAA experiences overflights of a wide variety of military aircraft types, while areas not currently beneath military training airspace may experience occasional civilian aircraft overflights, as typified by the single-engine aircraft listed in [Table 3-5](#).

Supersonic aircraft operations are permitted in the existing Fox 3 MOA/ATCAA down to 5,000 feet AGL or 12,000 feet MSL, whichever is higher. In the center of the airspace unit, the supersonic noise level is a C-weighted day-night average noise level (CDNL) of 61 dB, and an average of about 4.6 sonic booms are heard per day under representative baseline conditions during a busy month. Aircraft operations in the Paxon ATCAA are approximately the same as for the Fox 3 MOA/ATCAA. Sonic boom intensity depends on a number of factors, including aircraft type and airspeed, maneuvers conducted (e.g., dive, climb, turn) and atmospheric conditions. Peak overpressure levels associated with several aircraft types are listed in [Table 3-6](#). Sonic booms generated by aircraft during maneuvers, rather than straight and level flight, sometimes generate sonic booms up to five times more intense, but these booms are focused over a much smaller ground area.

Table 3-5. Sound Exposure Level (in Decibels) at Altitude (in Feet) Under the Flight Track Associated with Representative Aircraft Types

Aircraft Type	Airspeed ¹	Feet AGL ¹						
		300	500	1,000	2,000	5,000	10,000	20,000
	(knots)	(in decibels)						
F-15C	520	116	112	107	101	91	80	65
F-15E ²	450	107	103	98	92	84	76	66
F-22	450	120	116	111	105	95	86.4	76
F-16C ²	450	116	112	106	100	91	83	72
F-18A	500	118	114	108	101	89	77	62
B-1B	550	116	112	107	101	92	82	70
C-17	230	103	99	92	84	72	63	53
C-130J	235	104	100	94	88	78	69	60
KC-135R	300	N/A	N/A	N/A	N/A	N/A	70	60
Single-engine, variable-pitch propeller-driven aircraft (generic)	160	87	84	79	74	67	61	53

¹ Level flight, cruise configuration.

² equipped with Pratt and Whitney PW-229 engine(s)

Key: AGL=above ground level; N/A=not applicable.

Table 3-6. Sonic Boom Peak Overpressures for Aircraft at Mach 1.2 Level Flight (in pounds per square foot)

Aircraft	Altitude (feet)				
	5,000	10,000	20,000	30,000	40,000
F-15C	9.4	5.4	2.9	1.9	1.5
F-16	7.6	4.4	2.3	1.5	1.2
F-18	8.8	5.0	2.7	1.7	1.3
F-22	9.7	5.6	3.0	2.0	1.6

Source: Air Force 2006-1

3.1.2.2 Impact Assessment Methodology

Methods used to estimate noise levels and impacts associated with those noise levels are described briefly in this section and in greater detail in Appendix E, *Noise*. Noise impacts several resource areas. Noise impacts on biological resources, cultural resources, land use, socioeconomics, and environmental justice will be discussed in the sections of this EIS dealing specifically with those resource areas.

Time-averaged subsonic aircraft noise levels were assessed using the program MRNMAP (MOA-Range NOISEMAP), individual sonic boom event noise levels were assessed using CABoom, and time-averaged supersonic noise levels were assessed using BOOMAP (Plotkin and Grandi 2002). All three computer programs were developed by the U.S. Department of Defense (DoD) but have also been approved for use in these roles by the FAA’s Office of Environment and Energy.

The primary metric used for assessment of impacts from aircraft noise is DNL. Numerous sociological surveys have shown DNL and its variants, L_{dnmr} and CDNL, to be good predictors of public annoyance, the most common impact associated with exposure to elevated noise levels (Fidell et al. 1991; CHABA 1981; Schultz 1978; Stusnick et al. 1992). While the response of individuals to a certain level of noise is highly variable and impossible to predict accurately, the probability of a negative response among groups of individuals can be predicted with a fair degree of accuracy. [Table 3-7](#) lists the percentage of the population highly annoyed by elevated subsonic aircraft overflight noise levels, as measured in dB L_{dnmr} , and supersonic noise levels as measured in dB CDNL.

Table 3-7. Relation Between Annoyance and Day-Night Average Sound Levels

dB DNL	% Highly Annoyed	dB CDNL
45	0.83	42
50	1.66	46
55	3.31	51
60	6.48	56
65	12.29	60
70	22.10	65

Key: DNL=day-night average sound level;
CDNL=C-weighted day-night average sound level.

Federal agencies have established 65 dB DNL as a threshold to determine residential land use compatibility around airports, highways, or other transportation corridors (FICUN 1980; FICON 1992). The FAA, which has special expertise and authority in the area of aviation-related noise, has defined a significant noise impact as one that would occur if analysis shows that the proposed action will cause noise-sensitive areas to experience an increase in noise of 1.5 dB DNL or more at or above 65 dB DNL noise exposure when compared to the No Action Alternative for the same time frame. A DNL of 55 dB was identified by the U.S. Environmental Protection Agency (EPA) as a level “requisite to protect the public health and welfare with an adequate margin of safety” (EPA 1974). At this noise level, noise may be heard, but there is no risk to public health or welfare. A DNL of 75 dB is a threshold above which effects other than annoyance cannot be categorically discounted (CHABA 1977).

Time-averaged noise metrics such as DNL do not directly describe noise levels associated with individual overflight events, and secondary metrics are used to provide a more-complete picture of noise levels. Noise levels associated with subsonic overflights of aircraft types that would use the proposed airspace areas frequently are described using the sound exposure level (SEL) metric. The average number of sonic booms is described for each portion of the affected area and the overpressure levels as measured in pounds per square foot is presented for several aircraft in a standard flight configuration. Laboratory tests of glass (White 1972) have shown that properly installed window glass will typically not break at overpressures below 10 pounds, even when subjected to repeated booms. However, sonic boom

structural damage is possible at lower overpressures, particularly if the affected structure is old or in poor condition. Sonic booms have not been shown to result in direct physical injuries; the loudest sonic boom ever recorded (144 pounds per square foot) did not cause any injuries to researchers present (Nixon 1968).

Scoping results indicated that the population in the region of influence (ROI) is concerned about noise and particularly about noise in areas that are currently quiet. For this analysis, noise impacts would be expected to be perceived as significant if airspace noise levels were to exceed 65 dB L_{dnmr} or 62 dB CDNL and increase by greater than 1.5 dB. Noise impacts would also be considered potentially significant if substantial increases in noise level (i.e., greater than 10 dB) were to occur in areas that are currently very quiet.

Reviewers also expressed concern about potential impacts of subsonic and supersonic noise on fish eggs and young fish including those at hatcheries. A review of literature on the topic suggests that increased mortality would not occur as a result of aircraft noise. Stadler and Woodbury (2009) found that small fish (less than 2 grams) are not physically injured by in-water noise levels below 183 dB sound pressure level. The loudest proposed aircraft overflights would generate noise levels approximately 28 dB below this threshold. In 1973, Rucker reported no increase in egg mortality after eggs were exposed to sonic booms, even when exposure occurred at the most sensitive developmental stage.

3.1.2.3 Environmental Consequences

The sound levels presented in this section are predictions. Actual noise levels would vary due to temperature inversions, humidity, distance to the aircraft, number of aircraft generating the noise, and other factors specific to a particular noise event.

3.1.2.3.1 Alternative A

Under Alternative A, the Paxon MOA would be established and the existing Fox 3 MOA would be expanded to better accommodate military training operations. All subdivisions of the proposed Fox 3 MOA as well as the new Paxon MOA would have an established minimum flight altitude at 500 feet AGL.

Subsonic aircraft noise levels beneath the Paxon MOA/ATCAA would increase from 37 to 54 dB L_{dnmr} . Noise levels beneath all subunits of the expanded Fox 3 MOA would increase from 39 dB L_{dnmr} (in areas under the existing Fox 3 MOA/ATCAA) or ambient sound levels (in areas not beneath military airspace) to 49 dB L_{dnmr} . In areas currently beneath training airspace, the aircraft types flying overhead would not be expected to change relative to the types using the airspace currently, but the aircraft would fly at lower altitudes as a result of “floor” altitude decrease. Decreasing altitudes would result in increased individual overflight noise events (see [Table 3-5](#)). Persons affected by increased noise levels would be more likely to be annoyed by the noise. Individual aircraft overflights at relatively low altitudes would generate noise levels that could potentially disrupt activities such as conversation. Aircraft operations in SUAs such as the proposed Fox 3 and Paxon MOAs occur throughout the volume of the airspace. Low time-averaged noise levels reflect the fact that low-altitude overflights at any given location on the ground would be relatively infrequent. Time-averaged noise levels beneath the proposed airspace areas would not exceed 54 dB L_{dnmr} , remaining below the EPA-identified noise level “requisite to protect the public health and welfare with an adequate margin of safety”. However, increases in noise levels in areas not currently overlain by MOAs would be greater than 10 dB and would be expected to be easily noticeable, particularly because the ambient noise level in the ROI is low.

Supersonic noise levels beneath the existing Fox 3 MOA/ATCAA and Paxon ATCAA would increase by less than 1dB, remaining at 61 dB CDNL. The average number of sonic booms per day near the center of the Fox 3 MOA/ATCAA airspace would increase by less than one per day from 4.6 per day to 5.2. Areas

near but not currently beneath the Fox 3 MOA/ATCAA occasionally experience sonic booms when sonic booms sometimes propagate to ground areas outside the area overlain by the airspace. However, this is relatively rare and sonic booms would become a much more frequent occurrence in areas that would become included in Fox 3 MOA under Alternative A. In these areas, increases in supersonic noise levels would be highly noticeable. Increases in supersonic noise would be expected to result in annoyance in affected persons. Areas beneath the proposed Paxon MOA are currently overlain by the Paxon ATCAA which permits supersonic training. Supersonic noise levels beneath the proposed Paxon MOA would increase by less than 1 dB CDNL and from 4.6 to 5.2 sonic booms per day near the center of the airspace.

Increases in subsonic noise levels exceed significance thresholds established for this project and are of particular concern in areas where baseline noise levels are extremely low. While the intensity of the proposed noise levels does not exceed widely accepted impact thresholds, below which significant noise impacts do not typically occur, the context and degree of change are such that the change would be easily noticed and would be expected to be considered to be significant by a substantial percentage of the affected population.

The risk of hearing loss associated with proposed training operations would be negligible. With regard to the likelihood of noise-induced hearing loss, the duration of sound is as important as its level. Beneath training airspace, the duration of intense noise events is typically short. High noise levels from low-altitude flight are, of course, a concern and have been specifically studied.

Nixon (1993) measured changes in human hearing from noise representative of low-flying aircraft on MTRs. The potential effects of aircraft flying along MTRs are of particular concern as the maximum overflight noise levels can exceed 115 dB, with a rapid increase in noise level exceeding 30 dB per second. In that study, participants were first subjected to four overflight noise exposures at A-weighted levels of 115 dB to 130 dB. One-half of the subjects showed no change in hearing levels, one-fourth had a temporary 5-dB increase in sensitivity, and one-fourth had a temporary 5-dB decrease in sensitivity. In the next phase, participants were subjected to up to eight successive overflights, separated by 90-second intervals, at a maximum level of 130 dB until a temporary shift in hearing was observed. The temporary hearing threshold shift showed a decrease in sensitivity of up to 10 dB.

Ising (1999) measured temporary threshold shifts of 115 test subjects between 18 and 50 years old after laboratory exposure to military low-altitude flight noise. The results indicate that repeated exposure to military low-altitude flight noise with maximum noise levels greater than 114 dB may have the potential to cause permanent noise-induced hearing loss, especially if the noise level increases rapidly.

The most pertinent result was that of Nixon, who showed no ill effects from a sequence of four successive exposures up to 130 dB but hearing damage risk at twice that exposure. Ising replicated the result that hearing damage risk is associated with repeated exposure to this type of noise event. In the proposed action, exposure to single events at this level will be rare, and exposure to multiple events comparable to (or even approaching) those in Nixon's study will not occur. The primary adverse effect would be surprise or startle, as stated in this EIS.

3.1.2.3.2 Alternative E (Preferred Alternative)

Under Alternative E, Fox 3 would be expanded, but not by as much as under Alternative A, and the floor altitude would be decreased from 5,000 AGL to 500 AGL. Also, under this alternative, Paxon MOA would also be created with a floor altitude of 500 AGL. Beneath Fox 3 MOA/ATCAA, subsonic noise levels would increase from 39 to 50 dB L_{dnmr} . Noise levels beneath Paxon MOA/ATCAA would increase from 37 to 54 dB L_{dnmr} . Under Alternatives A and E there would be equivalent number of aircraft operations in Paxon and Fox. However, under Alternative E Paxon is smaller in size, and as a result training operations would be more concentrated, leading to higher calculated subsonic noise levels.

Increases in supersonic noise levels would be the same as for Alternative A.

3.1.2.3.3 No Action Alternative

Under the No Action Alternative, there would be no change to existing airspace structure or existing baseline training operations. No change in noise levels would occur and they would remain as under current existing conditions.

3.1.2.4 Mitigations

Noise impact mitigation measures, including designated avoidance areas and public information exchange procedures currently in effect would continue under all proposed actions. Limitations on the number of MFEs permitted per year and the dates on which MFEs can occur would remain in effect. Additional discussion on noise management actions and noise sensitive areas can be found in Appendix B, *Definition of the Resources and Regulatory Settings*, at Section B.2.3.5.

No mitigations are identified for this resource, but are identified for affected resources in Sections [3.1.8.4](#) (Biological Resources), [3.1.10.4](#) (Land Use/Public Access/Recreation), and [3.1.12.4](#) (Socioeconomics).

3.1.3 Safety

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.3.

3.1.3.1 Affected Environment

FLIGHT SAFETY

Flight safety is a significant concern for all aviation activities and serves as the primary basis for all regulations, procedures, and practices that govern how, when, and where aircraft operations are conducted. This was one of the concerns raised in the scoping comments and was also of utmost importance to the military in formulating the different airspace proposals presented in this EIS. Recent military and civilian aircraft mishaps in Alaska have also drawn more attention to aircraft and aviation flight safety concerns.

The risks most prevalent to flight safety include the potential for aircraft mishaps (i.e., equipment malfunctions, weather conditions, or pilot error), near misses/midair collisions between military and civil aviation, and bird/wildlife-aircraft strike hazard (BASH). The following sections address each of these risk categories and those program initiatives and practices implemented to ensure and improve upon flight safety for all concerned in the affected airspace environment.

Aircraft Mishap Potential

DoD defines and tracks aircraft mishaps within the Class A, B, and C categories as discussed in Appendix B, Section B.3.1.1. Most Class A mishaps occur around airfields and in low-altitude flight profile. The higher potential for mishaps outside of the airfield environment is high-performance maneuvering such as what occurs in SUA. The 11th AF has experienced two Class A mishaps during the past 3 fiscal years. Any significant increase or reduction in the number of flying hours flown could result in a proportional change in the aircraft mishap potential.

This existing SUA airspace environment has relatively low population densities with flight exclusionary/no-fly zones established around those population centers pilots avoid while operating at low altitudes. The brief amount of time an aircraft flies over any specific geographic area limits the probability of an aircraft mishap within a populated area.

Air Force and Army flight safety regulations and programs address aircrew responsibilities for following proper safety practices, responses to aircraft malfunctions, and other actions aimed at conducting flight activities in the safest manner possible. These are constantly reinforced through training, preflight briefings, and other initiatives. The military also maintains detailed emergency and mishap response plans that assign agency responsibilities and prescribe actions to be taken in response to major mishaps. These actions are exercised periodically to ensure all responders are aware of their responsibilities.

Near Miss/Midair Collision Potential

Scoping comments highlighted concerns over flight safety as it relates to interactions between military and civil aviation within the existing and proposed airspace. Discussions with pilots, hunters, fishermen, and recreationists flying within the affected environment indicated that, although they occasionally see a military aircraft, they were generally at altitudes beneath those aircraft and all concerned practiced see-and-avoid measures.

A near miss is generally considered to be any circumstance in flight where the distance separating two aircraft is considered by either pilot to have constituted a hazardous situation involving a risk of collision. Historical data indicate there have been few reported near misses and no midair collisions within the existing JPARC airspace. Those that have occurred over the years have been between general aviation recreational aircraft operating at low altitudes around an airfield environment. Safe flight operations within the JPARC airspace can be attributed to pilot safety consciousness, the initiatives described in Section [3.1.1](#) for awareness of SUA scheduled and real-time use, established VFR corridors, and flight advisory services.

The Air Force has initiated projects to expand radar and radio capabilities within the JPARC SUA with the installation of three additional relay systems that has expanded this coverage throughout the Fox, Eielson, and Yukon MOAs. Substantial areas of the Fox and Buffalo MOAs did not have radar coverage; however, radar system enhancements have improved the ability of ERC to track and monitor aircraft activity within that airspace. The ERC currently has no radar capability below 5,000 feet AGL in the areas proposed for the Fox 3 and Paxon MOAs. Although not all general aviation aircraft are equipped with transponders, improved capabilities for exchanging information on use of the MOAs can also improve flight safety, efficiency, and emergency coverage within the affected environment for all military and civil aviation operations.

Both Eielson AFB and JBER have midair collision avoidance programs and brochures accessible through their respective home websites that provide information aimed at helping increase pilot awareness of the training airspace and activities. Air Force participation in the ACMAC and other such forums with aviation stakeholders also provides a means of discussing, resolving, and promoting flight safety matters.

Bird/Wildlife-Aircraft Strike Hazards

Bird/wildlife-aircraft strikes constitute a safety concern because they can result in damage to aircraft, injury to aircrews, or crash-related injury to local human populations. Aircraft may encounter birds at altitudes up to 30,000 feet MSL or higher. However, most birds fly close to the ground. Migratory waterfowl (e.g., ducks, geese, swans) are the most hazardous birds to low-flying aircraft because of both their size and propensity for migrating in large flocks at different altitudes and times of day. These birds typically migrate at night in the fall and spring and generally fly between the altitudes of 1,000 to 2,500 feet AGL.

Raptors, shorebirds, gulls, songbirds, and other birds also pose a hazard to flight safety. The history of bird-aircraft strikes in restricted areas shows that strikes involving raptors have resulted in the majority of Class A and Class B aircraft mishaps. In Alaska, migration periods for waterfowl and raptors are from August to October and from April to May. In general, flights above 1,500 feet AGL would be above the altitudes typical for most migrating and wintering raptors. Sandhill cranes can be a flight hazard in the

Delta Junction area where they tend to roost at night on sandbars from early August until late October and fly in large groups during the day. They flush when rotary-winged aircraft approach them at low altitudes and have the potential to fly into the rotors.

Statistics indicate that about 97 percent of reported bird strikes occur below 3,000 feet AGL with nearly half of those occurring below 500 feet AGL. About half of those bird strikes occur within the airfield environment and half at low altitudes during other phases of flight. The 11th AF Safety Office indicates there were five BASH mishaps in Alaska between 2007 and 2011 but none resulted in any Class A mishaps (Flynn 2012). The last major aircraft mishap resulting from a bird strike in Alaska occurred at Elmendorf AFB in 1995 when a departing E-3 Airborne Warning and Control System aircraft struck a flock of Canadian geese that were ingested into the aircraft's engines.

There are continuous efforts by the airport operators and other aviation interests to understand and predict bird movements and habitat use around airfield environments to better identify periods of increased risk and limit the potential for bird-aircraft strikes. Groups such as the Alaska Bird Observatory and Bird Strike Committee USA are consulted to obtain information on bird activities in both the airfield and training airspace environments. While studies indicate that the higher levels of bird activities occur in the spring and fall, there are continuing efforts to better model and predict the likelihood of bird activities within those areas and altitudes where both civil and military aircraft typically operate. Information from these studies is used to update and enhance military BASH programs to better respond to those periods and locations of greater risk for a bird/wildlife-aircraft strike.

The Air Force has developed procedures for minimizing the occurrence of bird/wildlife-aircraft strikes that include means for monitoring and reacting to heightened risks of bird strikes. As these risks increase, limits are placed on low-altitude flight activities. Pilots are also briefed on the increased bird-strike potential when a higher level of bird sightings is reported around the airfield and within the training airspace, normally during the spring and fall migration periods.

GROUND SAFETY

This proposed action is limited to flight operations and does not include ground-related activities, such as air-to-ground ordnance training. Consequently, impacts on ground safety are not expected. Aircraft from Eielson AFB and JBER that would utilize the expanded Fox 3 MOA and new Paxon MOA are supported by existing munitions storage areas at Eielson AFB and JBER, respectively. Ordnance is handled and stored in accordance with Air Force Manual 91-201, *Explosives Safety Standards* (Air Force 2011-2), and all munitions maintenance is carried out by trained, qualified personnel using Air Force-approved technical data.

Chaff and defensive flares are managed as ordnance. Chaff and flares are authorized for use by 11th AF crews in existing MOAs and ATCAAs. Use is governed by detailed operating procedures to ensure safety. Air Force altitude restrictions for flare use in Alaskan airspace are above 5,000 feet AGL from June through September and above 2,000 feet AGL for the rest of the year. These altitude restrictions substantially reduce any risk of a fire from training with defensive flares. Chaff, which is ejected from an aircraft to reflect radar signals, consists of fibers of aluminum-coated silica thinner than human hair packed into approximately 4-ounce bundles. When ejected, chaff forms a brief electronic "cloud" that temporarily masks the aircraft from radar detection. Although the chaff may be ejected from the aircraft using a small pyrotechnic charge, the chaff itself is not explosive. Depending on the chaff used, plastic or nylon pieces, a felt piece, and 2-inch by 3-inch squares of parchment paper can fall to the ground with each released chaff bundle.

Each defensive flare consists of small pellets of highly flammable material that burn rapidly at extremely high temperature. Flares provide a heat source other than the aircraft's engine exhaust to mislead heat-sensitive or heat-seeking targeting systems and decoy them away from the aircraft. The flare ignites upon

ejection from the aircraft and burns completely within approximately 3.5 to 5 seconds, or approximately 400 to 500 feet from its release point. The existing use of flares as defensive countermeasures results in small plastic, nylon, and aluminum-coated Mylar pieces falling to the ground. Flare residual materials are generally light with a high surface to weight ratio. This results in essentially no likelihood of a flare end cap, piston, or wrapper causing injury in the highly unlikely event residual material from a flare struck a person or an animal.

The only exception could be the flare safe & initiation (S&I) device, which falls with the force of a medium-sized hailstone. Calculations of the likelihood of an S&I device striking an individual take into consideration the population density under the airspace, the number of flares deployed, and the amount of time the population was outside and unprotected even by a hat. If, for example, a population has an average density of 0.5 persons per square mile and is exposed 50 percent of the time under an airspace the size of the proposed Fox 3/Paxon MOA, and if 2,000 flares were deployed annually in the airspace, the expected strikes of a hailstone-sized S&I device to a person would be 1 in 16,000 years. In other words, it is extremely unlikely that anyone would be struck with the force of a medium-sized hailstone as a result of existing or proposed training with flares in the airspace.

3.1.3.2 Impact Assessment Methodology

The elements of this proposed action that could potentially affect safety are evaluated based on the degree to which the action increases or decreases safety risks to the public or the risks of damage to private property. Ground, fire, and flight safety are also assessed in terms of the potential for increased indirect impact risk and the capability for management of such risk through appropriate response to potential emergencies.

FLIGHT SAFETY

The potential impacts of the proposed airspace actions on flight safety in the affected environments are addressed from the perspectives of aircraft mishaps, near misses and midair collisions, and bird/wildlife-aircraft strikes. The analyses of each area are further examined relative to aircraft mishap statistics, the level of military and civil aviation activities within the affected environments and measures that have been implemented to reduce conflicts between these activities, and the existence of bird/wildlife within the areas and altitudes at which aircraft typically operate. For example, the potential for an increase in the number of aircraft Class A mishaps from flight operations or bird/wildlife-aircraft strikes were evaluated by considering projected aircraft sorties with aircraft mishaps and bird/wildlife-aircraft statistics under baseline conditions presented in the Affected Environment discussions.

GROUND SAFETY

Aircrews in Alaskan airspace train on air-to-ground ranges within existing restricted airspace. Air Force safety standards require safeguards on weapons systems and ordnance to ensure against inadvertent releases. All munitions mounted on an aircraft, as well as the guns, are equipped with mechanisms that preclude release or firing without activation of an electronic arming circuit. Detailed operating procedures published by the air-to-ground ranges that support 11th AF training ensure that all safety standards are met for the type of ordnance delivered and the delivery profile associated with that ordnance.

DoD Explosives Safety Board 6055.9-Standard (DoD 1999) and Air Force Manual 91-201, *Explosives Safety Standards* (Air Force 2011-2), represent DoD and Air Force guidelines for complying with explosives safety. These regulations, as well as Air Force Instruction (AFI) 91-204 (Air Force 2008-1), identify explosives safety mishaps that involve both explosive and chemical agents. Explosives include ammunition, propellants (solid and liquid), pyrotechnics, chaff and defensive flares, warheads, explosive devices, and chemical substances and associated components that present real or potential hazards to life, property, or the environment.

3.1.3.3 Environmental Consequences

3.1.3.3.1 Alternative A

FLIGHT SAFETY

Scoping comments would suggest that Alternative A presents the greater potential threat to flight safety than the other airspace proposals being considered in this EIS. The following considers any increased potential for aircraft mishaps, near misses/midair collisions, and bird-aircraft strike hazards that could result from the greater areas and lower altitudes proposed under this alternative.

Aircraft Mishap Potential

The potential for any aircraft mishaps under this alternative would be low to moderate. Considering that the number of aircraft operations and flying days/hours by both MFE and routine training activities are not projected to increase significantly over current levels with this proposed action, the aircraft mishap potential should not increase. The two military aircraft mishaps that occurred in 2010 are not representative of the overall flight safety record the Air Force has experienced in Alaska over the years. However, statistics indicate that most Class A mishaps occur around airfields, as happened with the C-17 mishap, and in a low-altitude flight profile or high-performance maneuvering area such as where the F-22 mishap occurred.

The probability of an aircraft crash into a populated area is extremely low and, as noted previously, the areas covered by the expanded Fox 3 MOA and the proposed new Paxon MOA have relatively low population densities. The limited amount of time aircraft would operate over this greater expanse of airspace should reduce the probability of a mishap in a populated area. This probability is further reduced by the flight restrictions that are currently established over populated areas that would also be considered for any such areas beneath the proposed airspace. The programs and procedures in place to help pilots operate their aircraft safely and respond responsively to aircraft malfunctions would continue to minimize the aircraft mishap potential, while preparedness of military and civil emergency responders would help minimize the environmental impacts if a mishap were to occur.

Near Miss/Midair Collision Potential

The potential for any near misses or midair collisions under this alternative would be moderate to significant. One of the greatest concerns in this military operations environment is the potential for a near miss or midair collision between VFR aircraft and low-altitude, high-speed military aircraft. Sections [3.1.1.1](#) and [3.1.1.3](#) discuss this potential relative to the average daily number of MFE and routine training flights that would occur over the more dispersed airspace proposed under this alternative. The number of aircraft that may operate below 5,000 feet AGL during daily MFE or routine training sessions would vary with the aircraft type, the number of aircraft participants, and the type of mission being performed during each session. Appendix D, *Airspace Management*, Table D-3 provides an estimate of the percentage of time during a sortie mission each aircraft type typically operates within the altitude blocks shown. The higher percentage of time within those lower altitudes are normally by cargo type aircraft, rotary-wing aircraft, and A-10s, which constitute a lesser portion of the daily/annual sorties within the JPARC MOAs. The vast majority of those daily/annual operations are conducted by higher-speed fighter aircraft (F-15s, F-16s, and F-22s) that spend less than 10 percent of their time below 5,000 feet AGL. Given the estimated daily average sorties discussed in Section [3.1.1](#) and the percentages noted in Table D-3, this provides some general perspective on what flight activities may occur at the lower proposed altitudes. Since both MFEs and routine training would only be conducted at the lower altitudes in the Fox 3 MOA, the greater number of aircraft that could be encountered at low altitudes would be in that MOA only since routine training operations must remain at 14,000 feet MSL and above in the proposed Paxon MOA.

No midair collisions and few reported near misses have occurred within the existing JPARC airspace. Continued pilot attentiveness to safe flight practices, maintenance of situational awareness, and use of available communications for tracking the scheduled and near real-time status of the SUAs would help maintain a safe flying environment for all concerned. As noted in Section [3.1.1.1](#), SUAIS capabilities and the manner in which this service is provided are outlined in an FAA agreement and Air Force procedures and communicated through the SUAIS Pamphlet and other means. Any changes to those capabilities and the current or future areas in which this service is provided would be appropriately addressed and communicated through those same venues.

The Air Force would expand existing VFR corridors, such as along the Richardson Highway, and establish new flight avoidance areas, as necessary, to further enhance flight safety within those areas where higher-density VFR flights normally occur. The 11th AF Airspace Handbook lists the areas/locations that pilots are to avoid during flight training activities, and the listing is updated, as needed, to reflect any additions or changes to the listing.

The JBER and Eielson AFB midair collision avoidance programs would be updated, as needed, to help increase public awareness of any new airspace actions and training activities that may be implemented from the JPARC proposals.

Bird/Wildlife-Aircraft Strike Hazards

The potential for bird/wildlife-aircraft strikes would be low to moderate with the proposed lower altitudes to be flown, since most birds tend to fly within that lower altitude range, as described in Section [3.1.1](#). Migration periods for waterfowl and raptors in Alaska are from August to October and from April to May, which includes those months when some MFEs are conducted. As also noted in Section [3.1.1](#), the vast majority of Air Force–reported bird strikes has occurred below 3,000 feet AGL, with nearly half of those occurring above 500 feet AGL.

Bird activities and the risk of bird/wildlife-aircraft strikes would be of concern in this expanded airspace, and the existing BASH programs and procedures would include consideration of any additional means for monitoring and reacting to heightened risks of bird strikes in this airspace. All means would be used to identify when eagles, swans, waterfowl, and other large birds would be flying in the 500- to 2,500-foot AGL range so as to take those actions necessary to avoid potential bird strike hazards during those limited periods pilots would be flying below 2,500 feet AGL. This would include use of radar tracking and where possible, tracking/modeling migratory trends, pilot reports, and other such measures currently used by the military or other agencies to monitor where and when such bird activities occur. Pilots would be briefed on any increased bird strike potential, and limits would be placed on low-altitude flight activities, as necessary, during those reported periods of increased risk. The mitigation measures discussed in Section [3.1.8.4 \(Biological Resources\)](#) for avoiding eagle and other wildlife habitats during nesting seasons would also serve to minimize BASH hazards.

GROUND SAFETY

The proposed use of chaff in the MOAs results in small plastic, nylon, and aluminum-coated Mylar pieces falling to the ground. With flares, residual materials are also generally light with a high surface-to-weight ratio (see discussion in Section [3.1.10.3.1](#) for more information). This results in essentially no likelihood of a flare end cap, piston, or wrapper causing injury in the highly unlikely event residual material from a flare struck a person or an animal.

The only exception could be the flare safe and initiation device, which falls with the force of a medium-sized hailstone. Calculations of the likelihood of this device striking an individual take into consideration the population density under the airspace, the number of flares deployed, and the amount of time the population was outside and unprotected even by a hat. If, for example, a population has an average density of 0.5 persons per square mile and is exposed 50 percent of the time under an airspace the size of

the proposed Delta MOA, and if 2,000 flares were deployed annually in the airspace, the expected strikes of a hailstone-sized device to a person would be 1 in 16,000 years. In other words, it is extremely unlikely that anyone would be struck with the force of a medium-sized hailstone as a result of existing or proposed training with flares in the airspace.

An estimated 0.01 percent of deployed flares do not ignite and fall to earth as a dud flare. In the extremely unlikely case that an individual found a dud flare approximately 1-by-2-inches wide and 8 inches long, the individual should mark the location and notify Eielson AFB Public Affairs. A very high temperature (near 2,000 degrees Fahrenheit [°F]) or friction, such as could be caused by a bullet, could ignite a dud flare. Handling or striking a dud flare could result in injury or death.

The use of defensive flares in the MOAs may also be expected to have impacts associated with the potential for starting wildland fires from burning flares. Wildland fire management on Army lands is required by the Sikes Act and Army Regulation (AR) 200-1, as well as Public Law 106-65, the Military Lands Withdrawal Act. Additional direction regarding wildland fire management comes from USARAK's Integrated Wildland Fire Management Plan and the MOU between Bureau of Land Management (BLM) and USARAK. The purpose of these protocols is to establish wildland fire management procedures and protocols to provide USARAK the capability to complete its mission to maintain combat readiness and fulfill resource management intent.

Three primary management actions are used to prevent wildfires. First, a fire danger rating system is used to reduce the likelihood of a fire by limiting military activities. Certain military activities are restricted when thresholds of wildfire risk are reached. Second, wildfire danger is reduced through the removal of accumulated fuels (e.g., prescribed burning and/or construction and maintenance of fire or fuel breaks). Third, an Initial Attack Response Team remains available during military training activities during high and extreme fire danger to provide a rapid initial response to wildfires in the area. Additionally, coordination will occur between Air Force personnel and wildland fire fighting personnel regarding fire detection and response. See Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, for a complete list of wildland fire management mitigations.

Therefore, the use of chaff and flares would result in no significant impacts to ground safety.

3.1.3.3.2 Alternative E (Preferred Alternative)

FLIGHT SAFETY

The potential for aircraft mishaps and bird/wildlife-aircraft strikes would be generally the same as discussed for Alternative A, given that the number of aircraft operations and airspace uses would be the same as discussed for that alternative. The potential for near misses/midair collisions may be decreased somewhat with the reduced amount of airspace proposed for this alternative and its greater distance from the higher-use areas in which VFR and IFR aircraft typically operate. The proposed use of the Paxon MOA for routine training activities in the high sector (14,000 feet MSL and above) should not present any flight safety risks to VFR aircraft or bird/wildlife strike hazards other than what is of concern at the lower altitudes.

GROUND SAFETY

The potential for chaff and flare use impacts would generally be the same as discussed for Alternative A, given that the number of aircraft operations and airspace uses would be the same as discussed for that alternative. The only difference is that chaff and flare dispersal from aircraft would occur within a MOA somewhat smaller in size, although still within a very large expanse of airspace.

3.1.3.3 No Action Alternative

The No Action Alternative would involve continuation of those plans, procedures, and processes currently used for minimizing flight safety risks for all flight activities within the existing airspace.

3.1.3.4 Mitigations

FLIGHT SAFETY

Measures taken to prevent and mitigate aircraft mishaps, near misses/midair collisions, bird/wildlife-aircraft strikes, and other conditions that can jeopardize flight safety are fundamental elements of all aviation activities and safety programs. Those standing programs/procedures, such as preflight pilot safety briefings, advisories on reported increased bird activities, and maintaining in-flight situational awareness, coupled with the existing mitigations and any additional measures to be considered would collectively serve to minimize flight safety risks for all airspace users.

In addition to these practices, the following mitigations are proposed to reduce impacts on civilian air operations.

- **Special Use Airspace Information System.** Continue SUAIS in all areas where radio coverage exists; this includes a majority of the area beneath the proposed Fox 3 and Paxon MOAs. The SUAIS Letter of Agreement with the FAA will be updated to include current radio sites and any new MOAs to be covered by the system. The effectiveness of this mitigation in maintaining a safe, usable airspace can be seen in today's northern MOAs, which have minimum altitudes even lower than proposed here. The Air Force safely shares large expanses of airspace with civilian aviation utilizing the communication network known as SUAIS. Proposed new, low MOAs already have large areas of SUAIS coverage that would enable safe, simultaneous use of these new airspaces by civil and military aircraft.
- **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.

3.1.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.1.4.1 Affected Environment

The expansion of the Fox 3 MOA and the addition of the new Paxon MOA will take place in four adjacent boroughs and census areas: Denali, Matanuska-Susitna, Southeast Fairbanks, and Valdez-Cordova. The affected boroughs and census areas are all in attainment of the National Ambient Air Quality Standards (NAAQS). Table B-12 in Appendix B, Section B.4.3, summarizes the estimated 2008 annual emissions for the affected boroughs and census areas.

3.1.4.2 Impact Assessment Methodology

The air quality analysis estimated the changes (increases and/or decreases) in operational emissions that would occur from the proposed addition of the Paxon MOA and the modifications to the Fox 3 MOA and surrounding area. There are no proposed construction activities associated with this proposed action.

The analysis followed the general methodology described in Appendix B, Section B.4.5. Since the project region for this proposed action is in attainment of all NAAQS and EPA's General Conformity rule does not apply, the analysis used the Prevention of Significant Deterioration (PSD) new major source threshold of 250 tons per year of each pollutant as an indicator of significance or nonsignificance of projected air quality impacts.

PSD CLASS I AREA IMPACT ANALYSIS

The PSD Class I area of concern for this proposed action is Denali National Park, which is approximately 15 miles from the Fox 3 MOA. The majority of proposed training activities would occur within the area surrounding portions of Denali National Park. Due to the proximity of the proposed action to a pristine PSD Class I area, this EIS provides a qualitative analysis of the potential for proposed activities to affect visibility within this area.

3.1.4.3 Environmental Consequences

3.1.4.3.1 Alternative A

CONSTRUCTION

There are no construction activities associated with Alternative A for expansion of the Fox 3 MOA and the addition of the new Paxon MOA, as these actions would only involve airspace training activities.

OPERATIONS

Alternative A will move 50 percent of the sorties that currently occur at the Stony MOA to the Fox 3 MOA, resulting in lower emissions at Stony MOA and increased emissions at the Fox 3 MOA. Current aircraft operations at the Fox 3 MOA all occur above 3,000 feet and do not result in ground-level operations. A low-altitude stratum would be added to the Fox 3 MOA, which would result in portions of the current Fox 3 aircraft operations taking place at altitudes lower than the 3,000-foot mixing height, and increased air emissions in the region. The shift of sorties from the Stony MOA to the Fox 3 MOA would reduce the number of sorties that would occur at the Stony MOA by 50 percent, as well as the associated emissions from aircraft operations that would occur below 3,000 feet. Since the airspace floor for the proposed Paxon MOA is below 3,000 feet, the proposed sorties at the new Paxon MOA would result in new emissions in the region.

Chaff use is expected to increase due to the increased amount of sorties in the region. However, according to a Navy Research Laboratory Study, Environmental Effects of RF [Radio Frequency] Chaff, virtually all RF chaff is 10 to 100 times larger than particulate matter 10 microns or less in diameter (PM₁₀) or particulate matter 2.5 microns or less in diameter (PM_{2.5}) (Navy 1999). Additionally, the air quality impacts of chaff were evaluated by the Air Force in *Environmental Effects of Self-Protection Chaff and Flares* (Air Force 1997-2). The study concluded that most chaff fibers maintain their integrity after ejection. Although some fibers may fracture during ejection, it appears that this fracturing does not release particulate matter (Air Force 1997-2). Consequently, the use of chaff under Alternative A would not result in significant adverse air quality impacts.

The changes of emissions at all three MOAs were assessed to determine the residual (net) emissions and impacts associated with Alternative A. [Table 3-8](#) presents an estimate of the change in annual operational emissions that would occur under Alternative A for this proposed action. The data in [Table 3-8](#) show that

the residual (net) criteria pollutant emissions from Alternative A would not exceed their applicable PSD significance thresholds of 250 tons per year. Therefore, the criteria pollutant emissions that would result from the operation of Alternative A would result in less-than-significant air quality impacts. Given that the project region is in attainment of all NAAQS, a conformity determination is not necessary. Details of the aircraft operational data and emission factors used to estimate emissions from Alternative A are included in Appendix F, *Air Quality*, Tables F-1 through F-3. Tables F-4 through F-7 in Appendix F list the changes in emissions in the affected airspace from Alternative A.

Combustive emissions from the operation of aircraft in the MOAs would contain hazardous air pollutants (HAPs) that could potentially impact public health. It is expected that significant impacts on public health from HAPs emitted in association with aircraft operations would not occur, as the mobile and intermittent nature of these sources and the wide geographic regions of proposed operations would produce minimal impacts of HAPs in a localized area.

**Table 3-8. Change in Annual Operational Emissions
 Resulting from Implementation of Alternatives A and E**

Area	Change in Criteria Pollutant Emissions (tons per year)						Change in GHG Emissions (metric tons per year)
	VOCs	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	CO _{2e}
Stony MOA	-0.08	-0.80	-18.08	-1.61	-0.98	-0.89	-40,053
Fox 3 MOA	3.53	11.85	122.87	10.08	5.36	4.83	248,607
Paxon MOA	2.38	6.51	48.67	3.71	1.67	1.50	76,051
Total change in emissions	5.83	17.56	153.47	12.18	6.04	5.44	284,606
Significance thresholds	250	250	250	250	250	250	N/A

Key: CH₄=methane; CO=carbon monoxide; CO_{2e}=carbon dioxide equivalent equivalent; GHG=greenhouse gas; MOA=Military Operations Area; N/A=not applicable; NO_x=nitrogen oxide; PM_{2.5}=particulate matter 2.5 microns or less in diameter; PM₁₀=particulate matter 10 microns or less in diameter; SO₂=sulfur dioxide; VOCs=volatile organic compounds.

IMPACTS ON DENALI NATIONAL PARK

To quantify the impact of proposed emissions from Alternative A on air quality-related values in the nearby Denali National Park, this EIS provides an evaluation of the relative increase in proposed emissions in comparison with existing emissions within the following boroughs and census areas: Denali, Matanuska-Susitna, Southeast Fairbanks, and Valdez-Cordova.

The data in [Table 3-9](#) show that the net annual increases in emissions from Alternative A would range from 1.17 percent to 0.025 percent of the annual emissions for the combined affected boroughs and census areas (based on 2008 emissions inventory data), depending on the pollutant. The pollutants of greatest concern that would degrade visibility in Denali National Park are nitrogen oxides (NO_x) (as a precursor to ammonium nitrate) and volatile organic compounds (VOCs). [Table 3-9](#) data show that the projected annual emissions of VOCs and NO_x from Alternative A would equate to 0.09 percent and 1.17 percent, respectively, of the total emissions of these pollutants from these boroughs and census areas. In addition, due to the transport distance of at least 15 miles, these emissions would further disperse upon transport to this pristine PSD Class I area. As a result, the proposed action (or activities) would not produce a significant amount of emissions, as defined in section 40 *Code of Federal Regulations* (CFR) 52.21(b)(23)(iii) of the PSD regulation. Additionally, these relatively minimal levels of emissions would not substantially contribute to an increase in visibility impairment within the project region, which represents a less-than-significant adverse impact.

**Table 3-9. Annual Operational Emissions in
Comparison to Regional Emissions – Alternatives A and E**

Scenario	Criteria Pollutant Emissions (tons per year)					
	VOCs	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}
Change in emissions resulting from Alternatives A and E	5.83	17.56	153.47	12.18	6.04	5.44
Denali Borough ¹	295.45	1,534.40	421.04	35.50	996.74	129.97
Matanuska-Susitna Borough ¹	4,233.88	22,897.58	2,632.45	171.27	16,848.82	1,994.15
Southeast Fairbanks Census Area ¹	498.00	2,734.00	290.00	65.00	2,929.00	332.00
Valdez-Cordova Census Area ¹	1,404.51	6,169.55	9,751.40	1,103.29	3,753.06	782.14
Combined boroughs and census areas	6,431.84	33,335.52	13,094.89	1,375.06	24,527.62	3,238.26
Project percent of borough and census area emissions	0.09	0.053	1.17	0.89	0.025	0.17

1. Year 2008 emissions (EPA 2010).

Key: CO=carbon monoxide; NO_x=nitrogen oxide; PM_{2.5}=particulate matter 2.5 microns or less in diameter; PM₁₀=particulate matter 10 microns or less in diameter; SO₂=sulfur dioxide; VOCs=volatile organic compounds.

3.1.4.3.2 Alternative E (Preferred Alternative)

CONSTRUCTION

There are no construction activities associated with Alternative E for expansion of the Fox 3 MOA and the addition of the new Paxon MOA, as these actions would only involve airspace training activities.

OPERATIONS

Proposed aircraft operations in the expanded Fox 3, Stony, and new Paxon MOAs under Alternative E would be the same as the proposed operations under Alternative A. However, in comparison to Alternative A, the Fox 3 airspace would be smaller under Alternative E, and thus, the effects of the increases in emissions associated with increased operations would be more concentrated. See Section [3.1.4.3.1](#) for details on the changes in aircraft operations in the MOAs associated with this action.

The changes in emissions at all three MOAs were assessed to determine the residual (net) emissions and impacts associated with Alternative E. The data in [Table 3-9](#) above show that the residual (net) criteria pollutant emissions from Alternative E would not exceed their applicable PSD significance thresholds of 250 tons per year. Therefore, the criteria pollutant emissions that would result from the operation of Alternative E would result in less-than-significant adverse air quality impacts. Given that the project region is in attainment of all NAAQS, a conformity determination is not necessary. Details of the aircraft operational data and emission factors used to estimate emissions from Alternative A for the proposed action are included in Tables F-1 through F-3 of Appendix F, *Air Quality*, of this EIS. Tables F-4 through F-7 of Appendix F show the changes in emissions in the affected airspace from Alternative E.

Similar to Alternative A, Alternative E is not expected to result in significant impacts on public health from HAPs emitted in association with aircraft operations, as the mobile and intermittent nature of these sources and the wide geographic regions of proposed operations would produce minimal impacts of HAPs in a localized area. Additionally, the use of chaff under Alternative E would not result in any significant adverse air quality impacts.

IMPACTS ON DENALI NATIONAL PARK

The impacts of proposed emissions from Alternative E on Denali National Park would be similar to impacts from Alternative A, which are shown in [Table 3-9](#). As in Alternative A, the pollutants of greatest concern that would degrade visibility in Denali National Park are NO_x and VOCs. In addition, due to the

transport distance of at least 15 miles, these emissions would further disperse on this pristine PSD Class I area. As a result, the proposed action (or activities) would not produce a significant amount of emissions, as defined in section 40 CFR 52.21(b)(23)(iii) of the PSD regulation. These relatively minimal levels of emissions would not substantially contribute to an increase in visibility impairment within the project region, which represents a less-than-significant adverse impact.

3.1.4.3.3 No Action Alternative

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at the Fox 3 and Stony MOAs. Therefore, the No Action Alternative would not result in additional air quality impacts.

3.1.4.4 Mitigations

Since the impacts from all alternatives are expected to be insignificant, no actions to reduce air quality impacts are being proposed.

3.1.5 Physical Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5. Because this proposal does not involve any actions that would affect this resource, it does not require further analysis.

3.1.6 Water Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6. According to plans, dry target sites would be temporary and would not require permanent supporting infrastructure such as fencing, pads, power poles, hard lines, or permanent fixtures. They would be in the form of nonfunctional threat vehicles and trailers approved by the Alaska Department of Transportation, and would be placed within MOA airspace such that they could be approached from a full 360 degrees. Additional ground support would include unmanned air defense threat emitters on trailers and microwave and ground/air very-high-frequency/ultra-high-frequency radios. The dry target ground support equipment would be located on lands currently withdrawn for exclusive military use or other Federal and State lands within the MOA boundaries. The use of chaff and defensive flares is expected to have negligible impacts on water resources (see the discussion in Section [3.1.3.1](#)). Therefore, this action is expected to have little to no adverse impacts on water resources within the study area. Because this proposal involves no disturbance of the land surface that would affect this resource, further analysis is not required.

3.1.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.1.7.1 Affected Environment

Chaff and defensive flares are currently used in the existing Fox 3 MOA and are managed as ordnance. See the discussion on the use of chaff and flares in Section [3.1.3.1](#).

3.1.7.2 Impact Assessment Methodology

GENERAL HAZARDOUS MATERIALS AND WASTE

The qualitative and quantitative assessment of impacts from hazardous materials and waste management focuses on how and to what degree each alternative location may affect hazardous materials and waste generation, usage, management, and disposal. An impact was considered significant if (1) the generation of hazardous waste types or quantities could not be accommodated by the current management system, or (2) there was an increased likelihood of an uncontrolled release of hazardous materials that could contaminate the soil, surface water, groundwater, or air.

Impacts associated with hazardous materials and waste are based on the relevant statutes and regulations governing the handling and disposal of hazardous materials and waste (see Appendix B, Section B.7.2, Regulatory Setting). The regulations and associated impact methodologies address hazardous waste management, hazardous materials and hazardous waste contamination, toxic substances management, asbestos abatement and management, and hazardous materials spill management. [Table 3-10](#) summarizes methodologies associated with hazardous materials and waste.

Table 3-10. Materials/Hazardous Waste Impact Assessment Methodology

Topic	Methodology
Spill or release	Evaluate the increased risk of a spill of a hazardous substance, as defined by 40 CFR 302, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or 40 CFR 110, 112, 116, and 117, with respect to exceedance of existing management plans and procedures.
Water	Evaluate the increased risk for an accidental spill of hazardous or toxic materials in or near a body of water with respect to exceedance of existing management plans and procedures.
Contaminated sites	Evaluate the potential for contaminated sites or remediation activities to affect proposed actions such as to require regulatory renegotiation of remediation plans or delays to existing remediation plans.
Generation	Evaluate the potential for increased generation of hazardous substances with respect to exceedance of existing management plans and procedures.
Danger to the public	Evaluate the risk of endangering the public or environment during the storage, transport, or use of hazardous materials with respect to exceedance of existing management plans and procedures.

Key: CERCLA=Comprehensive Environmental Response; Compensation, and Liability Act; CFR=Code of Federal Regulations.

3.1.7.3 Environmental Consequences

3.1.7.3.1 Alternative A

AIRSPACE

This action would involve expansion of the existing Fox 3 MOA and creation of the new Paxon MOA. No new construction is proposed as part of this alternative. In addition, refueling and/or maintenance would not occur in the MOA footprint. Therefore, no beneficial or adverse general hazardous materials–related construction and operational impacts would occur in association with airspace operations. Live fire would not occur within these MOAs; therefore, ordnance–related chemical releases would not occur. However, chaff and flares are used throughout Alaskan training airspace as combat countermeasures against air- or ground-based threats. The use of training chaff and flares would be extended into the proposed Paxon MOA airspace; however, there would not be an increase in chaff and flare use within the overall airspace. Rather, this use would be redistributed over a larger expanse of airspace. The Air Force would encourage and facilitate the continued study of chaff alternatives (e.g., biodegradable chaff) to

reduce hazardous waste–related impacts on soils, surface water, air, and biological resources within and underlying the MOAs, such that no beneficial or adverse impacts would occur.

GROUND/INFRASTRUCTURE ASSETS

This alternative would involve the use of temporary dry targets for practice bombing without the actual release of ordnance. These dry targets would consist of nonfunctional threat vehicles and trailers beneath MOA airspace approved by the Alaska Department of Transportation that can be approached from a full 360 degrees. In the event that electric power for the ground support equipment were provided by portable generators, the Air Force would manage any hazardous materials, such as generator fuel, in accordance with AFI-32-7086, *Hazardous Materials Management* (Air Force 2004-2), and AFI-32-7042, *Waste Management* (Air Force 2009). In addition, the Air Force would comply with State regulations, including 18 Alaska Administrative Code (AAC) 62, *Hazardous Waste* (Alaska Department of Environmental Conservation [ADEC] 2003), and 18 AAC 75, *Oil and Other Hazardous Substances Pollution Control* (ADEC 2008), as well as all applicable Federal regulations, such that no beneficial or adverse impacts would occur.

3.1.7.3.2 Alternative E (Preferred Alternative)

The airspace structure for the Fox 3 MOA expansion under this alternative would be smaller in size from that proposed under Alternative A, with the southern boundary moved approximately 20 NM to the north and no subdivisions, as shown in [Figure 2-2](#). Also, this alternative would include addition of the new Paxon MOA, as shown in [Figure 2-2](#), with its proposed use to include both MFEs and routine training activities under different altitude scenarios. Impacts would be the same as described for Alternative A (Section [3.1.7.3.1](#)).

3.1.7.3.3 No Action Alternative

Under the No Action Alternative, there would be no addition to the current Fox 3 MOA configuration and no new Paxon MOA. Therefore, hazardous materials–related impacts would be the same as those occurring under existing conditions and no additional impacts would occur.

3.1.7.4 Mitigations

No mitigations are identified for this resource.

3.1.8 Biological Resources

Biological resources are essential to subsistence and, additionally, are a focus of outdoor recreation activities such as hunting, fishing, and birdwatching as well as enhancing other outdoor recreational activities such as cross-country skiing and hiking. Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.1.8.1 Affected Environment

The expanded Fox 3 MOA and proposed Paxon MOA overlie the Alaska Range and Copper River Basin ecoregions ([Figure 3-3](#)). In the Alaska Range ecoregion, a cold continental climate prevails and portions of the area are barren of vegetation. Below small icefields and glaciers, swift glacial streams with heavy sediment loads course down mountain ravines and braid across valley bottoms. Shrub communities of willow (*Salix* spp.), birch (*Betula* spp.), and alder (*Alnus* spp.) occupy lower slopes and valley bottoms. Forests are rare and confined to low-elevation drainages (Nowacki et al. 2001). The Copper River Basin ecoregion, which underlies the southwestern portion of the expanded Fox 3 MOA and proposed Paxon MOA, is a large wetland complex underlain by thin to moderately thick permafrost and pockmarked with

thaw lakes and ponds. A mix of low shrubs and black spruce (*Picea mariana*) forests and woodlands grows in the wet organic soils. The extensive boreal forests in the project region are prone to wildfire, the potential extent of which is increased with direct and indirect effects of global warming and fuel buildup (Chapin et al. 2008). The forests are adapted to and require recurring fire; however, caribou tend to avoid winter habitat burned in the last 50–60 years because of a lack of adequate lichen abundance due to the slow pace of lichen regeneration after fire (Rupp et al. 2006) compared to regeneration of other boreal forest vegetation. Cottonwood (*Populus* spp.), willow, and alder line rivers and streams as they braid or meander across the basin. Spring floods are common along drainages. Arctic grayling (*Thymallus arcticus*), burbot (*Lota lota*), and anadromous sockeye salmon (*Oncorhynchus nerka*) are common fishes. Black bear (*Ursus americanus*) and brown bear (*U. arctos*), caribou (*Rangifera tarandus*), wolverines (*Gulo gulo*), and ruffed grouse (*Bonasa umbellus*) are present throughout these wetland habitats. The climate is strongly continental, with steep seasonal temperature variation. The basin acts as a cold-air sink, and winter temperatures can be bitterly cold (Nowacki et al. 2001).

Habitat under the proposed expansion areas ranges from alpine tundra to marshy lowlands and supports populations of big game species, waterfowl, and anadromous fish. The project area supports Dall sheep (*Ovis dalli*) in the alpine tundra-vegetated middle and upper slopes of mountainous portions, especially under the southwestern part of the proposed Fox 3 expansion area and the northern part of the proposed Paxon MOA (Figure 3-4). Caribou habitat (Figure 3-5) for the Nelchina Caribou Herd underlies most of the airspace, with summer range and calving habitat underlying the central and western parts of the airspace and winter habitat under both the eastern and western portions. Anadromous fish streams are mainly under the Paxon MOA in the Copper River Basin ecoregion. Habitat used by moose (*Alces alces*) (Figure 3-6) underlies most of the airspace except the high mountains to the southwest and north. Habitat used by ducks, geese, and trumpeter swans (*Cygnus buccinator*) (Figure 3-7 and Figure 3-8) is especially prevalent under the southeastern part of the Fox 3 expansion area and the proposed Paxon MOA, coinciding with the larger river systems and marshy areas. The combined Fox 3 and proposed Paxon MOAs cover more than 2 million acres of nationally significant waterfowl nesting habitat. Nesting and post-nesting molt of adult birds occurs in this region between April 15 and August 1. Raptors, including bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), can be relatively common in the region. Historical studies along the upper Susitna River (under the Fox 3 MOA) from 1982 reported a linear density of active bald eagle nests of one nest per 14 river miles (ABR 2011). Another summary of available data concluded that the Susitna River basin (including a large area outside the Fox/Paxon MOAs extending downstream from the western boundary of the existing Fox 3 MOA southward to the Cook Inlet) supported approximately 150 to 200 pairs of bald eagles in 1995, and predicted populations were increasing (Ritchie and Ambrose 1996). Locations and numbers of active eagle nests vary each year. Figure 3-9 shows locations of historically recorded bald and golden eagle nests within and near the Fox 3 and Proposed Paxon MOAs. Note that there is incomplete survey coverage of the project area and that nesting undoubtedly exists over a broader area than shown. Potentially suitable habitat for bald eagles, based upon proximity to water and presence of trees, was modeled and is shown on the figure. Because the nest data were collected over several years, only a fraction of the indicated bald eagle nest locations shown would be active during any one year. Golden eagles, which tend to nest and forage in open country, are underrepresented in the available data. Golden eagle nesting data collected over a 10-year period in nearby Denali National Park showed wide fluctuations in success rates and brood size, primarily influenced by cyclical changes in abundance of their primary prey (McIntyre and Adams 1999). Nest sites are chosen based on proximity to suitable hunting terrain. In an 1,800-square kilometer (km²) study area within Denali National Park, there were approximately 62 nesting territories, about 79 percent (49) of which would be active in a given year (McIntyre 2002).

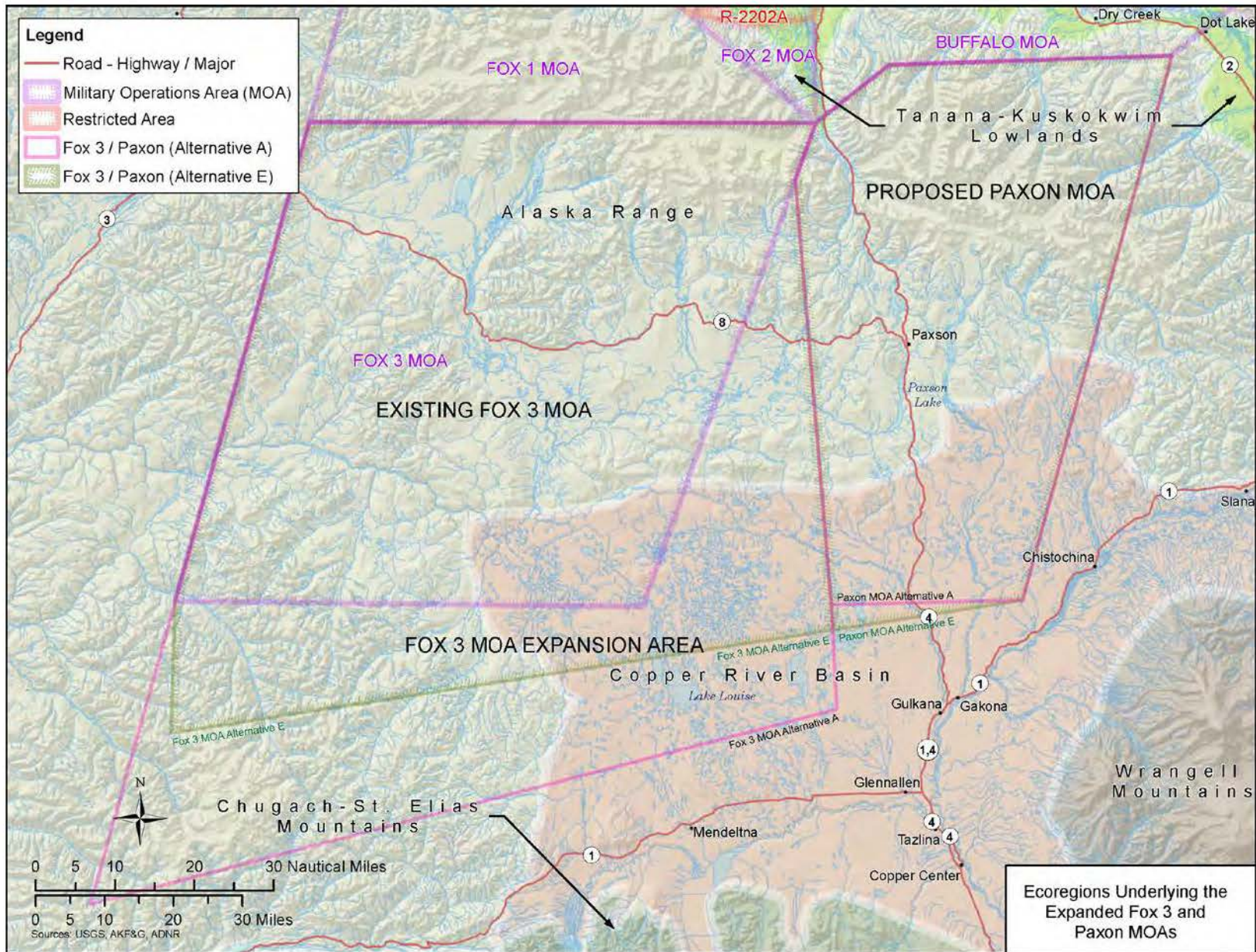


Figure 3-3. Ecoregions Underlying the Expanded Fox 3 and Paxson MOAs

Source: USGS 1996

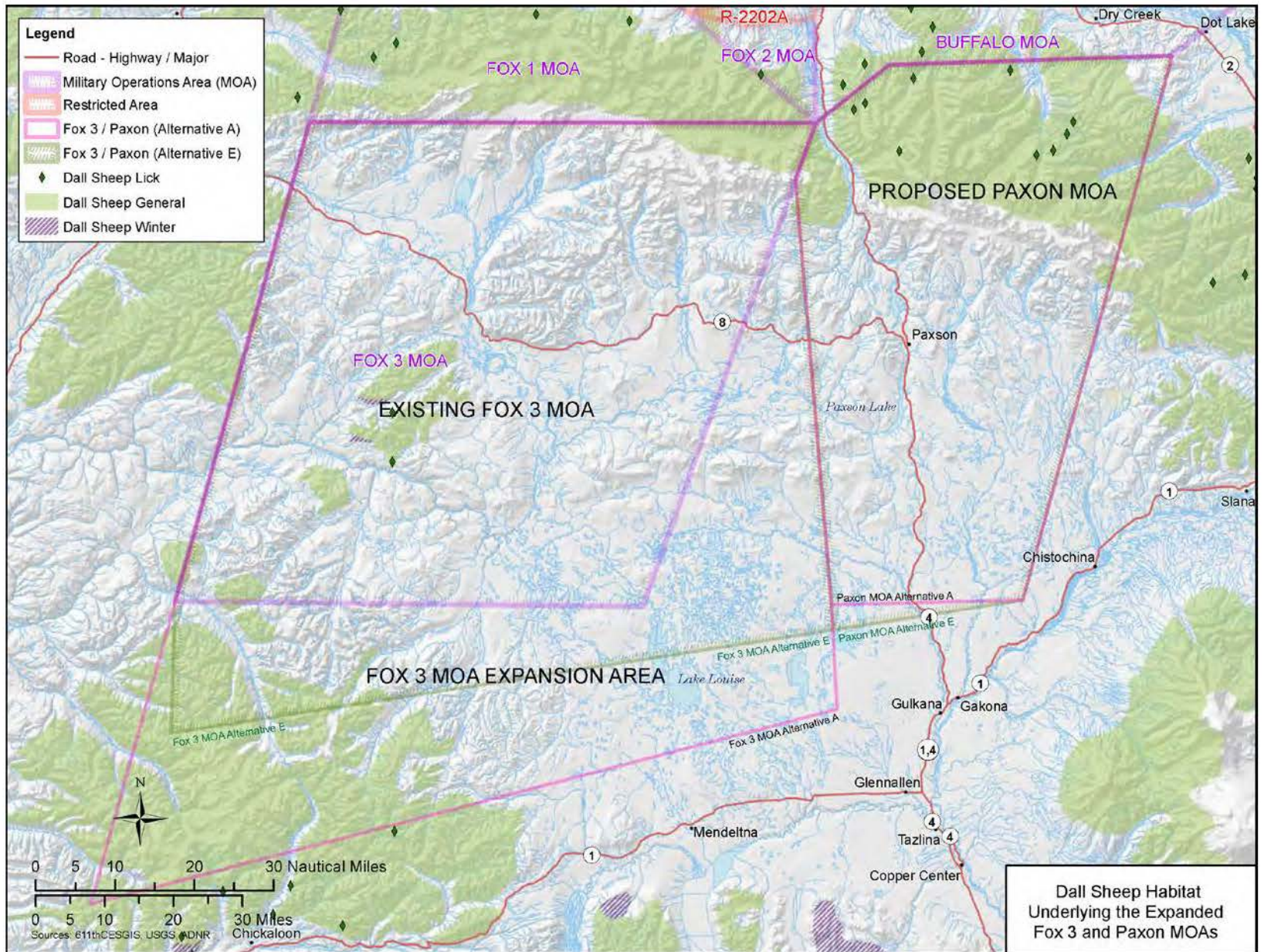


Figure 3-4. Dall Sheep Habitat Underlying the Expanded Fox 3 and Paxon MOAs

Source: RDI 2005-1

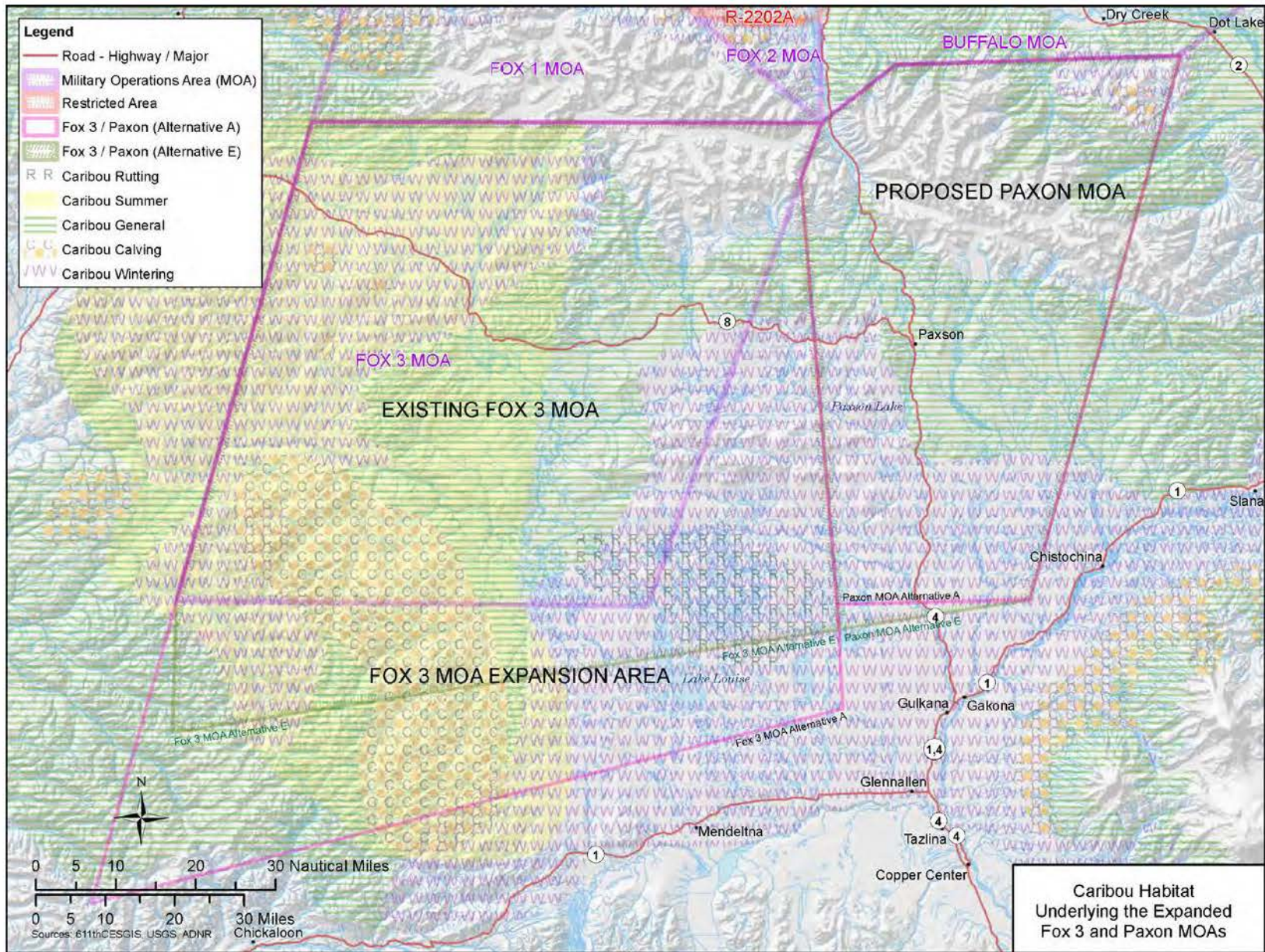


Figure 3-5. Caribou Habitat Underlying the Expanded Fox 3 and Paxon MOAs

Source: RDI 2005-2

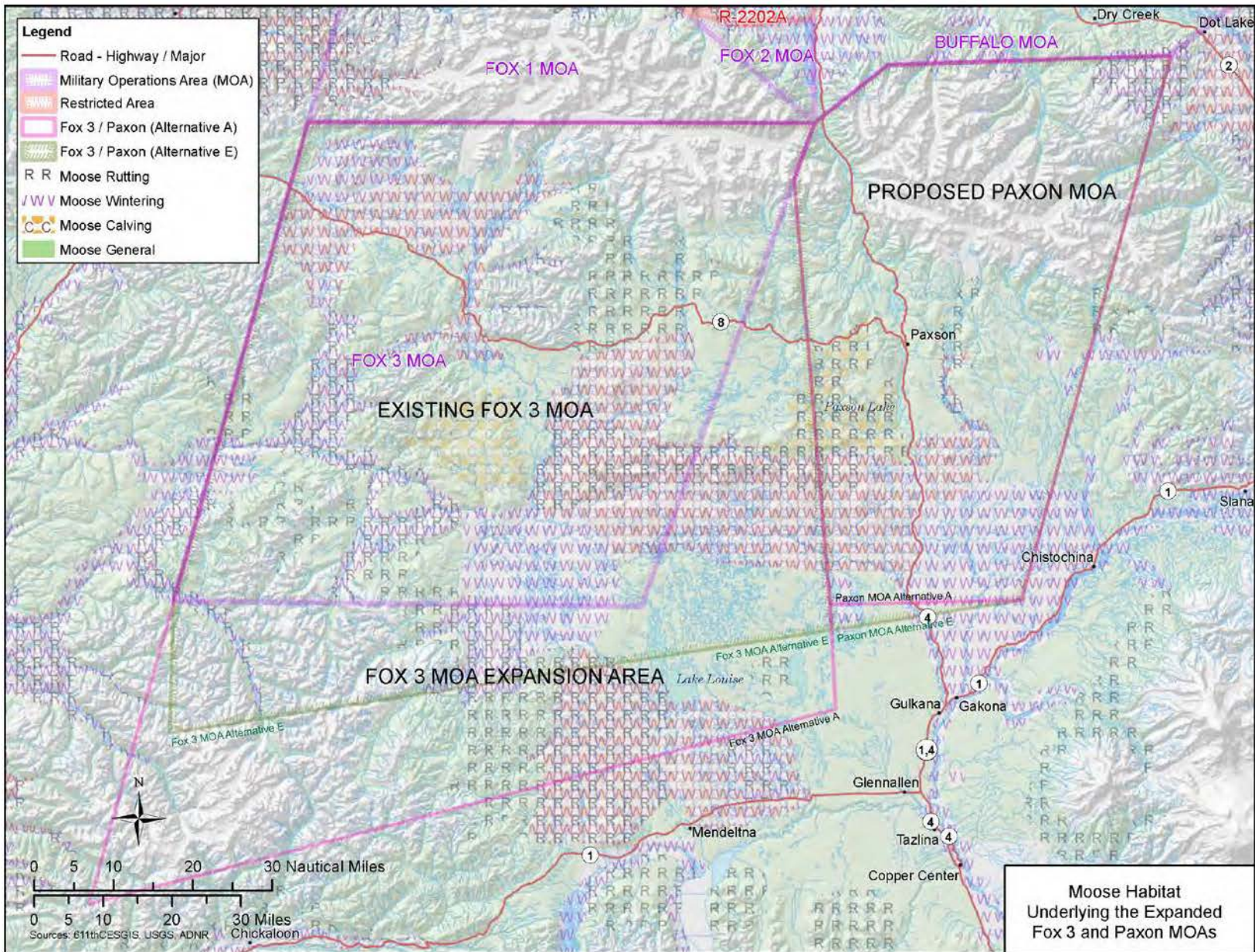


Figure 3-6. Moose Habitat Underlying the Expanded Fox 3 and Paxon MOAs

Source: RDI 2005-3

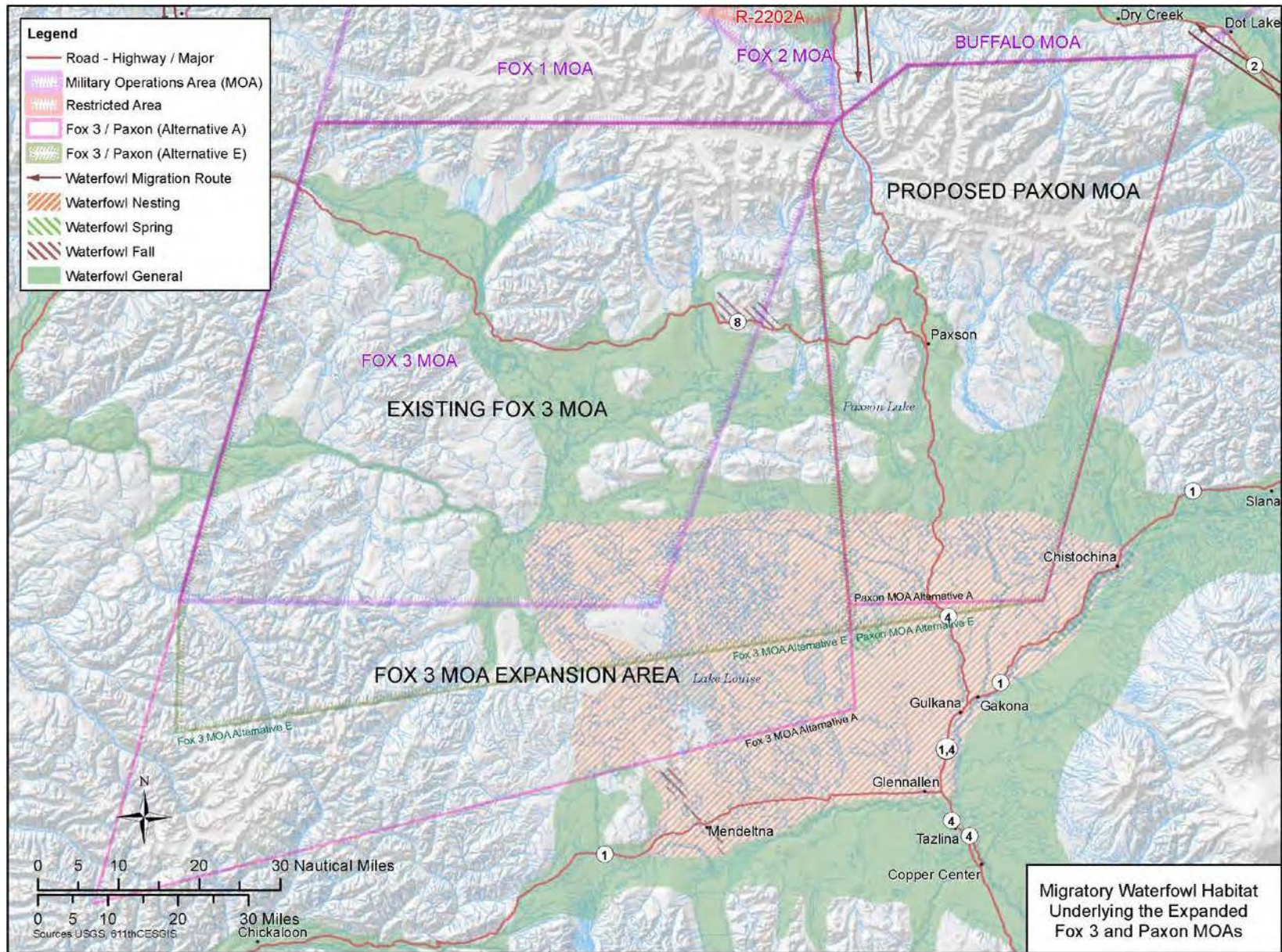


Figure 3-7. Migratory Waterfowl Habitat Underlying the Expanded Fox 3 and Paxon MOAs

Source: RDI 2005-4

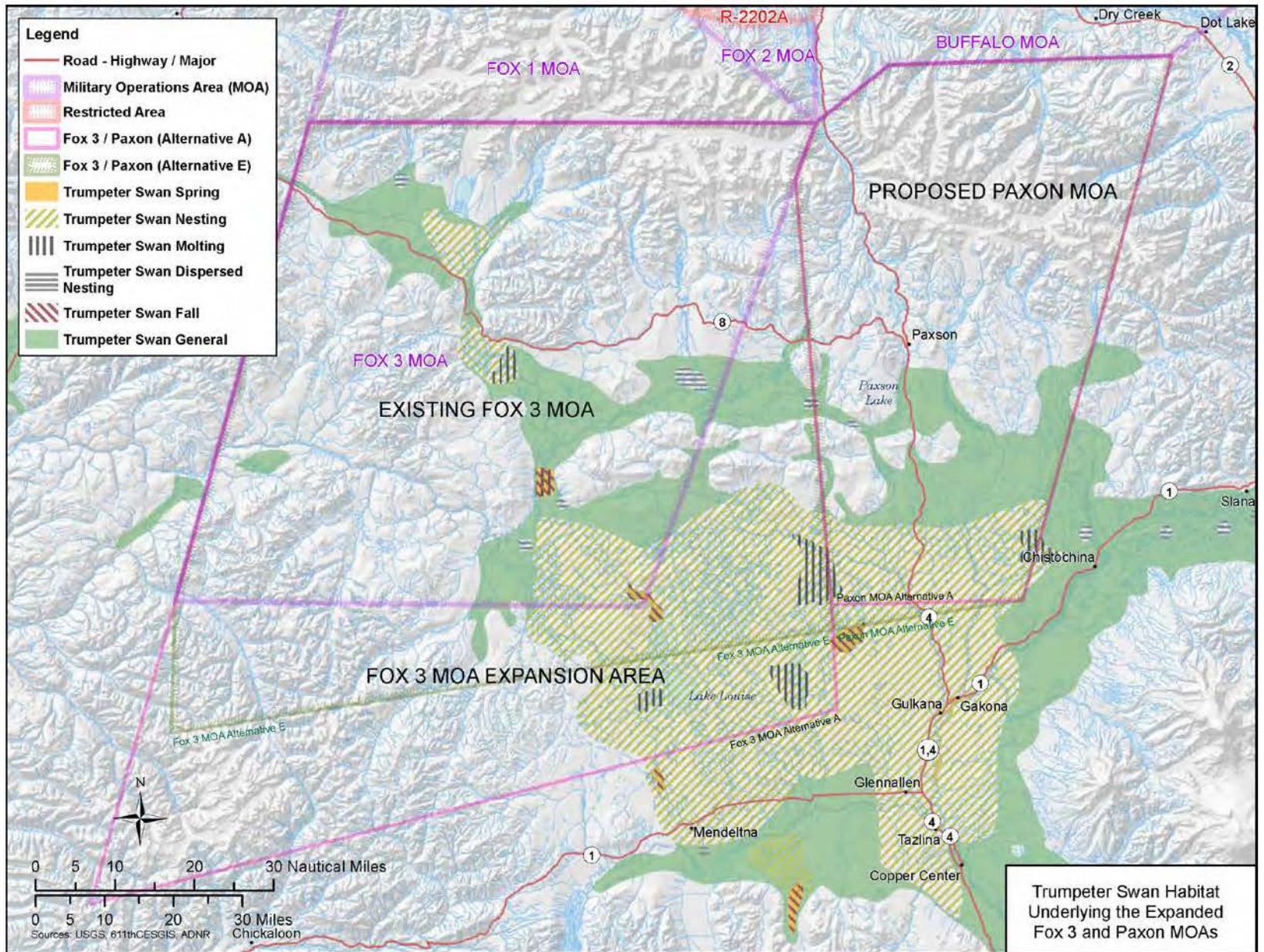


Figure 3-8. Trumpeter Swan Habitat Underlying the Expanded Fox 3 and Paxon MOAs

Source: RDI 2005-5

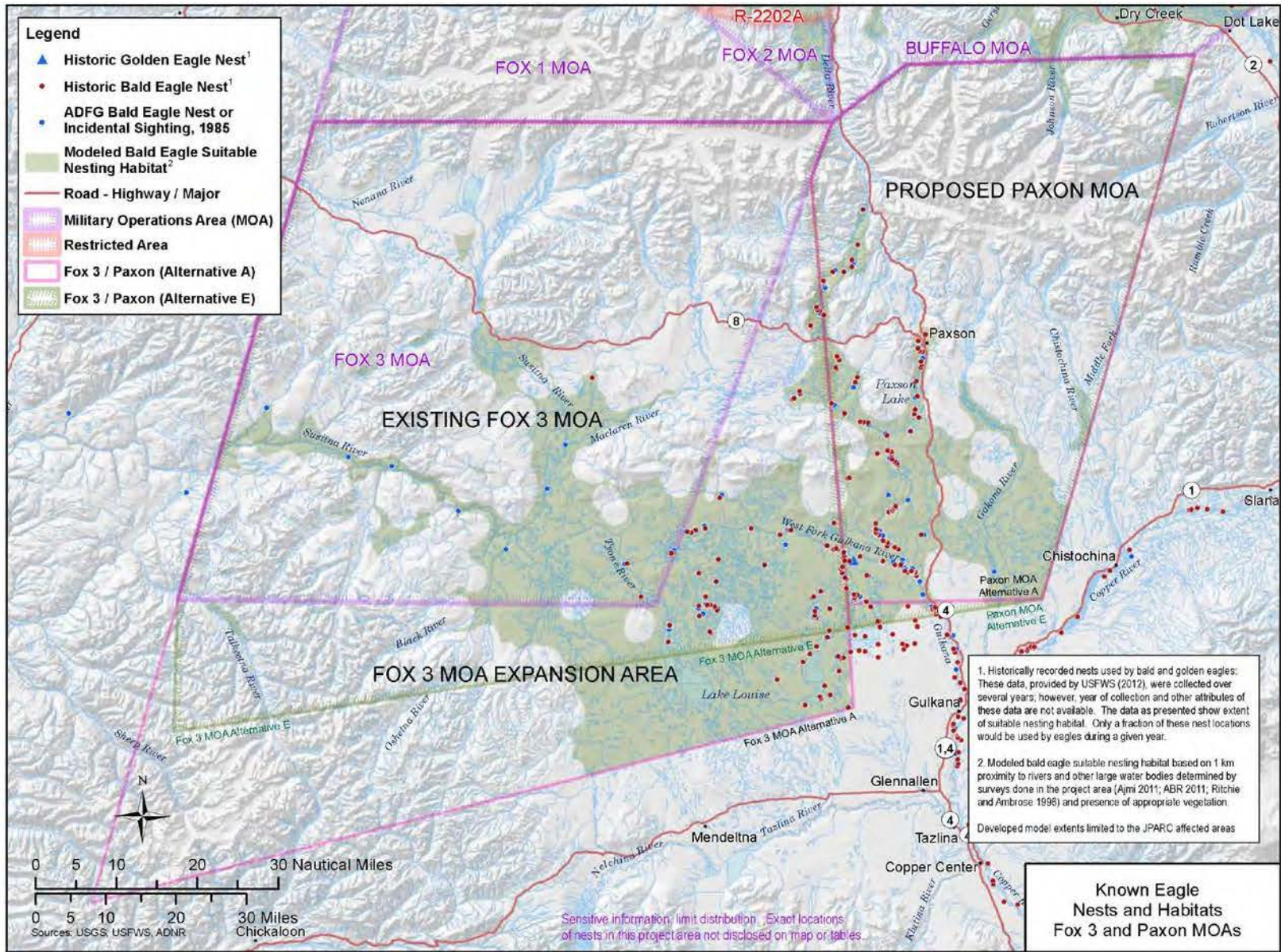


Figure 3-9. Known Eagle Nests and Habitats – Fox 3 and Paxon MOAs

3.1.8.2 Impact Assessment Methodology

Impact analysis was conducted using knowledge of wildlife habitat and sensitive species occurrence data, where available, based on where construction-related ground disturbance, range impacts, airfield operations (takeoffs, landings, engine run-ups), and other activities in airspace and MTRs would likely occur. Assessing the significance of direct and indirect impacts on biological resources is based on evaluation of their context and intensity including determinations of:

1. The importance (legal, commercial, cultural, recreational, ecological, or scientific) of the resource.
2. The rarity of a species or habitat regionally.
3. The sensitivity of the resource to proposed construction and training activities.
4. The proportion of the resource that would be affected relative to its occurrence in the region.
5. The duration of the impact.

Federal or State agencies consider impacts on biological resources to be greater if special interest species or habitats would be adversely affected, if substantial effects would occur over relatively large areas, and/or if disturbances would cause reductions in population size or distribution of a priority species.

Resources that may experience effects have been identified through public scoping meetings, communications with Federal and State agencies and Native American governments, and review of past environmental documentation. This analysis has been prepared to satisfy the requirements of NEPA, the Endangered Species Act (ESA), the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act (MBTA), the Clean Water Act (CWA), and the Sikes Act, as well as applicable State regulations.

Context and intensity are taken into consideration in determining a potential impact's significance, as defined in 40 CFR 1508.27. The context of an impact takes into account the affected ROI, the affected interests, and the locality. In the case of the site-specific alternatives, the affected ROI is the general location associated with the airspace and/or ground disturbance. The intensity of a potential impact on biological resources refers to the impact's severity and includes consideration of beneficial and adverse impacts, whether the action establishes a precedent for future actions with significant effects, the level of uncertainty about project impacts, and whether the action threatens to violate Federal, State, or local law requirements imposed for protection of the environment. The analysis encompasses direct and indirect effects, including short-term, long-term, and potential cumulative effects.

For effects that would occur on Army training lands, the U.S. Army Garrison Fort Wainwright, Alaska (USAG-FWA) Environmental Division staff has developed a system to rank species and quantify availability of high-value habitat on installations. Rankings for each mammal and bird species are based on the following factors: rarity; population trends; habitat specialization; spatial distribution; sensitivity to disturbance from military construction, training, or land management practices; potential to respond to management and recovery efforts; and status as game animals. These categories may be used to further refine impact assessments developed for the proposed action when applicable.

The evaluation criteria for biological resources include those for habitat and species disturbance, as well as species displacement and mortality. These criteria are the basis of the significance criteria used to assess the potential impacts of the action alternatives compared with the No Action Alternative.

BIOLOGICAL RESOURCES SIGNIFICANCE CRITERIA

- **Habitat Disturbance** – Changes in high-quality native (wetland and upland) habitat, including loss, fragmentation, or degradation. Less-than-significant impacts would be temporary short-term impacts and localized impacts unlikely to spread beyond the immediate area of disturbance.
- **Wildlife Disturbance** – Changes in behavior that result in long-term or permanent changes in population use of habitats and behavioral reactions that result in physiological stress that substantially affects productivity or survival. Less-than-significant impacts would be any changes in behavior not resulting in long-term or permanent changes of population use of habitats and behavior reactions that did not result in a level of physiological stress that substantially affected productivity or survival.
- **Displacement** – Changes in habitat use that result in permanent displacement of populations from their current range or shifts in habitat use that result in substantial decreased productivity or survival. Less-than-significant impacts would be temporary displacement of populations or temporary changes in habitat use that did not lead to a substantial decrease in productivity or survival.
- **Mortality** – Increases in species mortality rates from project activities that jeopardize sustainable regional populations or adversely affect wildlife management goals for populations. Less-than-significant impacts would include either no mortality or such limited mortality that it would not affect the regional population or affect wildlife management goals for that species.
- **Protected Species** – Direct mortality of protected species from project activities, or adverse effects of project activities on survival, reproduction, and/or productivity of protected species. Less-than-significant impacts would include no mortality from project activities or no adverse impact on survival, reproduction, and/or productivity. For Federally listed endangered or threatened species, more-specific and -stringent criteria would apply, consistent with ESA and the Bald and Golden Eagle Protection Act compliance.

For these analyses of environmental consequences, the focus is on the following species, identified as being indicator species, especially for their known breeding, winter, and other crucial habitats: caribou, moose, bison (*Bison bison*), Dall sheep, brown and black bear, raptors, including golden and bald eagles, migratory waterbirds, swans, sandhill crane (*Grus canadensis*), and neotropical migratory birds. Species identified as sensitive species, species of concern, or priority management species are included in the environmental consequences discussion as warranted by the probability of adverse effects related to the various alternatives. For the purposes of analyses regarding overflight effects on wildlife, we focused on aircraft time spent at or near the proposed minimum aircraft operation floors, which provide a conservative (or worst-case) scenario for assessing impacts on the selected species, because this would represent the highest levels of overflight disturbance likely to occur during major training events. Areas of ground disturbance from construction impacts were also considered to the extent possible.

In the analysis and discussion that follows, impacts have been classified as:

- Beneficial – Impacts would benefit wildlife resources.
- None – No measurable beneficial or adverse impacts are expected to occur.
- Adverse – There is a potential for adverse impacts, but not significant; may require management actions or mitigations to avoid or reduce impacts.
- Significant Adverse – There is a potential for significant adverse impacts; requires management actions or mitigations to avoid or reduce impacts.

The first three qualitative impact categories listed (beneficial, none, and adverse) are considered not significant in this analysis. The last category is considered significant and mitigation measures have been identified to offset negative impacts. New, proposed mitigations for definitive projects are presented after impact sections (Section [3.1.8.4](#), for this project).

3.1.8.3 Environmental Consequences

3.1.8.3.1 Alternative A

Alternative A includes the proposed expanded Fox 3 MOA and the proposed new Paxon MOA with both the high- and low-altitude MOAs. Under this alternative, the existing Fox 3 MOA would be expanded in area. The existing Fox 3 MOA is approximately 3,138,000 acres, and the expanded Fox 3 MOA would encompass 5,514,000 acres, including the area currently occupied by the Fox 3 MOA. In addition, the Paxon MOA would be established, encompassing 2,017,000 acres. The floor of the proposed expanded Fox 3 MOA and Paxon MOA would be 500 feet AGL. The current floor of the existing Fox 3 MOA would be lowered from 5,000 feet AGL to 500 feet AGL.

As detailed in Section [3.1.8.1](#), habitat under the existing Fox 3 MOA and the proposed expansion areas ranges from alpine tundra to marshy lowlands and supports populations of big game species, waterfowl, and anadromous fish. Big game include Dall sheep in the alpine tundra-vegetated mid and upper slopes of mountainous portions, and caribou and moose, which use habitat under most of the airspace, except for the highest mountainous areas. Anadromous fish streams include the Talkeetna and Susitna Rivers draining to the west from the Fox 3 MOA and the Gulkana River system and tributaries draining to the south from the proposed Fox 3 and Paxon MOAs. Habitat used by ducks, geese, and trumpeter swans is especially prevalent under the southeastern part of the Fox 3 expansion area and the southern part of the proposed Paxon MOA, coinciding with the larger river systems and marshy areas.

The floor of the existing Fox 3 MOA is 5,000 feet AGL and it extends upward to but not including FL180 (approximately 18,000 feet MSL). The proposed action would create a low-level MOA beneath the existing and proposed expanded Fox 3 MOA and the proposed Paxon MOA. This proposed low-level MOA would extend from 500 feet AGL up to but not including 5,000 feet AGL. A high-level MOA would overlie the low-level MOA and would extend from 5,000 feet AGL upward to but not including FL180.

Additional dry targets are proposed to be integrated into the tactically relevant JPARC threat-air defense system. Pilots use dry targets to practice bombing tactics without releasing actual ordnance. The dry target sites would be temporary and would not require permanent supporting infrastructure such as fencing, pads, power poles, hard lines, or permanent fixtures. The targets would be in the form of nonfunctional threat vehicles and trailers placed within MOA airspace such that they could be approached from a full 360 degrees. Additional ground support would include unmanned air-defense threat emitters on trailers and microwave and ground/air very-high-frequency/ultra-high-frequency radios. The temporary dry targets would be located on lands currently withdrawn for exclusive military use or other lands, as permitted, within the MOA boundaries. It is assumed that no new access roads or other ground clearance would be required to place these targets, which would be periodically relocated to provide realism. They would be placed on existing disturbed areas as indicated above, accessed by existing roads, or placed and removed by access across frozen ground, thereby avoiding impacts on vegetation or wildlife habitat.

[Table 3-11](#) summarizes the amounts of key wildlife resources under the existing Fox 3 MOA, under the proposed expanded Fox 3 MOA, and under the proposed Paxon MOA.

Table 3-11. Habitat Areas of Key Wildlife Resources Under Existing Fox 3 MOA and Under Proposed Expanded Fox MOA and Proposed Paxon MOA

	Airspace Area (acres)	Moose ¹		Caribou ²		Dall Sheep ³		Ducks and Geese ⁴		Trumpeter Swan ⁵	
		Habitat Area (acres)	Percent of Area Under Airspace	Habitat Area (acres)	Percent of Area Under Airspace	Habitat Area (acres)	Percent of Area Under Airspace	Habitat Area (acres)	Percent of Area Under Airspace	Habitat Area (acres)	Percent of Area Under Airspace
Existing Fox 3	3,138,000	2,570,000	82	2,844,000	91	196,000	6	951,000	30	657,000	21
Expanded Fox 3	5,514,000	4,167,000	76	5,169,000	94	872,000	16	1,802,000	33	1,487,000	27
Paxon	2,017,000	1,396,000	69	1,446,000	72	606,000	30	703,000	35	527,000	26
Fox 3 plus Paxon	7,531,000	5,563,000	74	6,615,000	88	1,478,000	20	2,505,000	33	2,014,000	27
Modified Fox 3 expansion plus modified Paxon (Alternative E)	6,401,000	4,932,000	77	5,527,000	86	945,000	15	2,220,000	35	1,751,000	27

¹ General habitat mapped throughout.

² Prevalent throughout; calving and rutting predominantly in Fox 3 expansion area.

³ Most prevalent in Fox 3 expansion and new Paxon. No lambing identified.

⁴ Habitat including nesting most prevalent in Fox 3 expansion and southern end of Paxon.

⁵ Habitat including nesting most prevalent in Fox 3 expansion and southern end of Paxon.

Key: MOA=Military Operations Area.

Source: RDI 2005-1, 2005-2, 2005-3, 2005-4, 2005-5, 2005-6

Although this proposed action would involve no physical ground disturbance (except for placement of dry targets, discussed above), wildlife species would be exposed to overflight by military aircraft flying as low as 500 feet AGL, potentially causing altered behavior or metabolic effects. Additionally, high speed maneuvers within the proposed airspace would create sonic booms, and training would incorporate use of chaff and flares, (depending on the aircraft) as defensive measures. Discussion of these potential impacts follows.

Several studies have documented the reaction and effects to ungulates exposed to military aircraft overflights. Responses ranged from no reaction and habituation to panic reaction from overflights below 500 feet AGL (Weisenberger et al. 1996; Mancini et al. 1988). Both the visual aspect and peak noise level of overflights diminish rapidly with increasing altitude of overflight. Similarly, wildlife responses diminish with increasing altitude of overflight (or increasing slant distance, which is a combination of aircraft height AGL and the horizontal distance from the animal for an aircraft not directly overhead).

A National Park Service study (Anderson and Horonjeff 1992) described the relationship between increasing altitude or slant distances and diminution of sound levels. Very large reductions in sound levels (on the order of 15 to 25 dB) are experienced as altitude or slant distance increases from 125 feet to 1,000 feet. Increases from 1,000 to 2,000 feet altitude would produce smaller but still moderate to substantial reductions (on the order of 4 to 8 dB). Between 2,000 and 7,000 feet AGL, 1,000-foot increases in distance produce considerably smaller reductions in sound levels (on the order of 3 to 5 dB), and above 7,000 feet AGL, each 1,000-foot increase in altitude results in only very small reductions in sound level (Anderson and Horonjeff 1992).

Reported wildlife responses to overflight are largely behavioral and short-term. Some short-term physiological changes (e.g., increased heart rate) have also been measured. Behavioral responses to overflights at 500 feet AGL and above are generally characterized for wildlife species, including various ungulate species, as minor and include individuals assuming an alert posture, rising, walking, or running short distances. Few studies have evaluated the effect of military overflights on moose; several have studied the effect on caribou. Andersen et al. (1996) studied the response of radio-collared moose to large-scale ground and aerial military training exercises. They found temporary increases in heart rate

that returned to normal soon (within 10 to 20 minutes or less) after the exposure. Animal flight responses were greater in response to approach by humans than to approach by equipment, including aircraft, possibly due to perception of humans as predators. Overflight of F-16 jets flying at 150 m AGL (less than 500 feet AGL) did not elicit any heart rate or activity response from a moose, while skiers and walkers were flushing moose at approach distances of 200 to 400 m (650 to 1,300 feet). Home ranges were temporarily displaced approximately 1.4 kilometers (km) during the exercises, which involved 6,000 personnel, several hundred pieces of mechanized equipment including battle tanks and all-terrain vehicles, a squadron of transport helicopters, and four jet fighter squadrons.

A recent study of barren ground caribou in Alaska documented only mild short-term reactions of caribou to military overflights in the Yukon MOAs (Lawler et al. 2005). A large portion of the Fortymile Caribou Herd calves underneath the Yukon MOAs, which are located to the northeast of the proposed Fox 3 and Paxon MOAs. Lawler et al. (2005) concluded that military overflights did not cause any calf death, nor did cow-calf pairs exhibit increased movement in response to the overflights. Magoun et al. (2003) identified that maintaining a floor of 2,000 feet (625 m) AGL for all military jet aircraft over caribou calving grounds would “eliminate most of the stronger-level reactions of caribou to military jet aircraft (startle reactions, trotting, and running) especially if speeds...did not exceed 500 knots between 2,000 feet AGL and 5,000 feet (1,562 m) AGL.” Maier et al. (1998) found that cow-calf pairs of the Delta Caribou Herd within a range that includes the proposed project area) exposed to low-altitude overflights in existing MOAs moved about 2.5 km more per day than those not exposed (Maier et al. 1998). The authors stated that moving this distance was of low energetic cost to barren ground caribou.

The proposed lowest altitude within the proposed Fox 3 MOA expansion and proposed Paxon MOA is 500 feet AGL. One of the mitigations from the *Alaska MOA EIS* and ROD (Air Force 1997-1) included establishing a minimum overflight altitude of 3,000 feet AGL over the Delta Caribou Herd calving areas from May 15 to June 15. This is consistent with the recommendation of Magoun et al. (2003), noted above.

Lawler et al. (2004) reported on a study of the effects of military jet overflights on Dall sheep under the Yukon 1 and 2 MOAs in Alaska. The study could find no difference in population trends, productivity, survival rates, behavior, or habitat use between areas mitigated and not mitigated for low-level military aircraft by the *Alaska MOA EIS* (Air Force 1997-1). In the mitigated area of the Yukon MOAs, flights are restricted to above 5,000 feet AGL during the lambing season. Project mitigations include proponent coordination with Alaska Department of Fish and Game (ADFG) to maintain seasonal avoidance areas over caribou and Dall sheep critical areas to minimize effects on these species (see Section [3.1.8.4](#)).

Studies of waterfowl including ducks and geese have shown (1) temporary behavioral responses to overflight, including taking flight; (2) responses decreasing in magnitude as overflight elevation increases; and (3) rapid resumption of the behaviors exhibited prior to the overflight (e.g., Komenda-Zehnder et al. 2003). Helicopters generally create a greater response at a given altitude than do fixed-wing aircraft, including military jets. Research has shown that waterfowl response to overflight varies by species, time of year, and distance to the aircraft. Other things being equal, faster aircraft (e.g., jets) elicited less of a response than slower propeller-driven aircraft (Komenda-Zehnder et al. 2003), possibly because of the shorter duration of the jet overflight coupled with the fact that jets in level flight typically are not audible until after they have passed overhead. Recommendations from the U.S. Fish and Wildlife Service (USFWS) are to avoid low-level flights (below 1,600 feet AGL) during the critical periods for adult waterfowl (April 15 through August 1) over nesting and post-nesting molt areas, which are typically associated with large river systems and marshy areas.

Songbirds and raptors, including bald and golden eagles, vary in their responses to military jet overflight, but documented responses have been limited to short-term behavioral responses and no effects that would

be measurable at a population level have been documented (see Appendix E, *Noise*). The Air Force proposes to avoid disturbance to nesting eagles by restricting minimum altitude to 1,000 feet AGL from March 15 to September 30 (nesting season), which is consistent with recommendations by the USFWS and included in the National Bald Eagle Management Guidelines (USFWS 2007), in the proposed expanded Fox 3 MOA and the proposed Paxon MOA (see Section [3.1.8.4](#)).

Fish in their native habitat would not be affected at the sound levels associated with military aircraft overflight as low as 500 feet AGL. Salmon are hearing generalists with their best hearing sensitivity at low frequencies (below 300 hertz) where they can detect particle motion induced by low frequency sound at high intensities (Amoser and Ladich 2005; Popper and Hastings 2009), not approached by projected sound levels associated with military jet overflight. Studies of Atlantic salmon conclude that they are unlikely to detect sounds originating in air (Hawkins and Johnstone 1978). Potentially sensitive areas such as the Gulkana hatchery, which is the largest sockeye salmon hatchery in the world (PWSAC 2012), could be affected by overflight noise in the proposed Paxon MOA, especially during the incubation period when the eggs are susceptible to any type of noise or shock. Eggs are beginning to be loaded into incubators in August and loading may continue into the beginning of October. After being taken, the eggs are very sensitive for about 2 months until they “eye up.” Concern was expressed that sonic booms associated with RED FLAG exercises scheduled to be in August and October would overlap the sensitive periods and cause egg mortality. The EIS preparers found one study that looked specifically at trout and salmon eggs after exposure during a critical phase of development to a variety of simulated sonic boom overpressures similar to those produced by military airplanes. Comparisons with control groups of eggs spawned at the same time indicated that the sonic boom exposure caused no increase in egg or fish fry mortality (Rucker 1973). The Air Force proposes to avoid overflight within 3 miles of either side of the Richardson Highway and below 5,000 feet MSL, which is expected to afford noise protection for the hatchery.

Supersonic operations in the proposed MOAs would be limited to altitudes at or above 5,000 feet AGL or 12,000 feet MSL, whichever is higher, to reduce sonic boom intensity at the surface. The current Fox 3 MOA is exposed to sonic booms as low as 5,000 feet AGL or 12,000 feet MSL, whichever is higher; and the Paxon ATCAA currently permits supersonic flight above FL300 (see Section [3.1.2.3.1](#)). Near the centers of the Fox 3 MOA/ATCAA and the Paxon MOA/ATCAA, sonic booms would increase from about 4.6 to 5.2 per day (approximately 13 percent increase) on average under the proposed action (Alternative A). Some animals may startle in response to a sonic boom, however, animals under the existing Fox 3 MOA and proposed Paxon MOAs have been previously exposed to sonic booms and may be habituated to the sound. For wildlife not previously exposed to sonic booms (e.g., under the Paxon MOA and the expanded portions of Fox 3 outside the boundaries of the existing Fox 3 MOA), some short-term behavioral responses may be observed but would not be expected to result in any population-level effects.

Chaff and flare use in the proposed action area is expected to be similar to use under current conditions in the Fox 3 MOA and other SUA in the region. There would be no change in the minimum altitude or seasonal restrictions on defensive flare release. Extensive studies of chaff particles and defensive flare constituents have found no negative impacts on biological resources, including both vegetation and wildlife. A recent evaluation of the effects of chaff and flares on wildlife applicable to nearby areas is contained in the *Delta Military Operations Area Environmental Assessment* (Air Force 2010). Mitigations in place to restrict altitude deployment of flares in Alaska have successfully avoided fire impacts from training with defensive flares (Air Force 2010). In conclusion, there is potential for adverse but not significant impacts to biological resources from project use of chaff and flares. Based on recent research and overflight restrictions contained in the 11th AF Airspace Handbook and proposed for this project (see Section [3.1.8.4](#)), it is expected that expanding the Fox 3 MOA and establishment of the Paxon

MOA would have less than significant impacts on fish and wildlife under the proposed airspace that would not be measurable at the population level.

3.1.8.3.2 Alternative E (Preferred Alternative)

Under this alternative, there would be an expanded Fox 3 MOA that would be reduced in size compared with that under Alternative A and a new Paxon MOA similar to that identified in Alternative A but with a different alignment of its southern boundary. The lower stratum of both the Fox 3 and Paxon MOAs under this alternative would extend down to 500 feet AGL as in Alternative A. The effects of this alternative would be similar to those described under Alternative A, except that less acreage of wildlife habitat would be located under the southern portion of the expanded airspace associated with this alternative as reflected in [Table 3-11](#) above. As for Alternative A, there is potential for adverse but not significant impacts to biological resources from project operations under Alternative E. Potential adverse effects to wildlife species would be reduced with the use of appropriate mitigation measures summarized in Section [3.1.8.4](#).

3.1.8.3.3 No Action Alternative

Under the No Action Alternative, the horizontal and vertical boundaries of the existing Fox 3 MOA would remain the same and training would be expected to continue as permitted within the existing MOA. Wildlife resources would remain as they currently exist under current conditions.

3.1.8.4 Mitigations

The foregoing analysis assumes that the proposed project and alternatives would incorporate the applicable mitigation measures adopted as part of past NEPA documentation for the airspace, including the *Final Alaska MOA EIS* (Air Force 1997-1) and subsequent airspace modifications (Air Force 2010).

The preceding analysis has identified adverse impacts to biological resources. The following mitigations are proposed to reduce these impacts.

- **Eagle and Migratory Bird Avoidance.** Limit minimum altitude to 1,000 feet AGL in the new Fox 3 and Paxon MOAs from March 15 to September 30 (nesting season) to comply with the Bald and Golden Eagle Protection Act. Subject to available funding, the Air Force may coordinate with the USFWS to establish habitat models and/or conduct bald and golden eagle nest surveys to establish low flying (500 feet AGL) areas outside of eagle habitat during the nesting season (March 15 to September 30).
- **Wildlife Avoidance.** Modify existing Letter of Agreement with ADFG to maintain avoidance areas over caribou and Dall sheep populations under the new MOAs during critical lifecycle periods. Coordination with wildlife agencies will continue to determine specifics, including seasons and minimum overflight altitudes; location of herds is monitored/reported by ADFG.
- **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional

benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.

- **National Wild and Scenic Rivers Protection.** For the period of May 15 to September 30, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-NM buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake).

3.1.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.1.9.1 Affected Environment

The cultural resources ROI for the proposed action consist of the land beneath the proposed Fox 3 MOA expansion and the proposed new Paxon MOA.

It is expected that there would be minimal ground disturbance associated with the action. The additional dry targets proposed would be trailers and nonfunctional threat vehicles that would be located on lands currently withdrawn for exclusive military use or other lands, as permitted, within the MOA boundaries. No new construction would be associated with this action. Thus, archaeological and historic architectural resources under airspace, which are unlikely to be affected by aircraft overflights (see Section [3.1.9.2](#) below), were characterized using the records of the National Register of Historic Places (National Register) and National Historic Landmarks.

Archaeological sites under existing training airspace include Native burial grounds, village and settlement sites, and historic mining sites (Air Force 2006-1). Historic buildings and structures under the proposed MOAs may include structures relating to gold mining, trapping, or the railroad (Air Force 2006-1). In addition to National Register-listed sites, there are likely to be additional cultural resources either eligible or potentially eligible for National Register listing under both the existing and proposed airspace. Locations of Federally recognized Alaska Native tribes under or near the airspace discussed below are illustrated in [Figure 3-10](#).

NATIONAL REGISTER-LISTED PROPERTIES

The National Register-listed Tangle Lakes Archaeological District is located on lands underlying the existing Fox 3 MOA (see Appendix H, *Cultural Resources*). The district contains more than 400 recorded archaeological sites spanning 10,000 years of human presence in the region (BLM 2006). However, there are no National Register-listed properties beneath the proposed Fox 3 expansion or the proposed new Paxon MOA (NRIS 2011).

TRADITIONAL CULTURAL PROPERTIES AND ALASKA NATIVE CONCERNS

Alaska Native tribes in the proposed Paxon MOA and Fox 3 MOA expansion area include the Cheesh-Na Tribe (formerly the Native Village of Chistochina), Native Village of Gakona, the Knik Tribe, and the Native Village of Tyonek, as well as scattered remote residences ([Figure 3-10](#)). Properties of traditional religious and cultural importance known to be located within the area include 10 burial sites affiliated with peoples of the Alaska Native corporation of Ahtna, Inc.

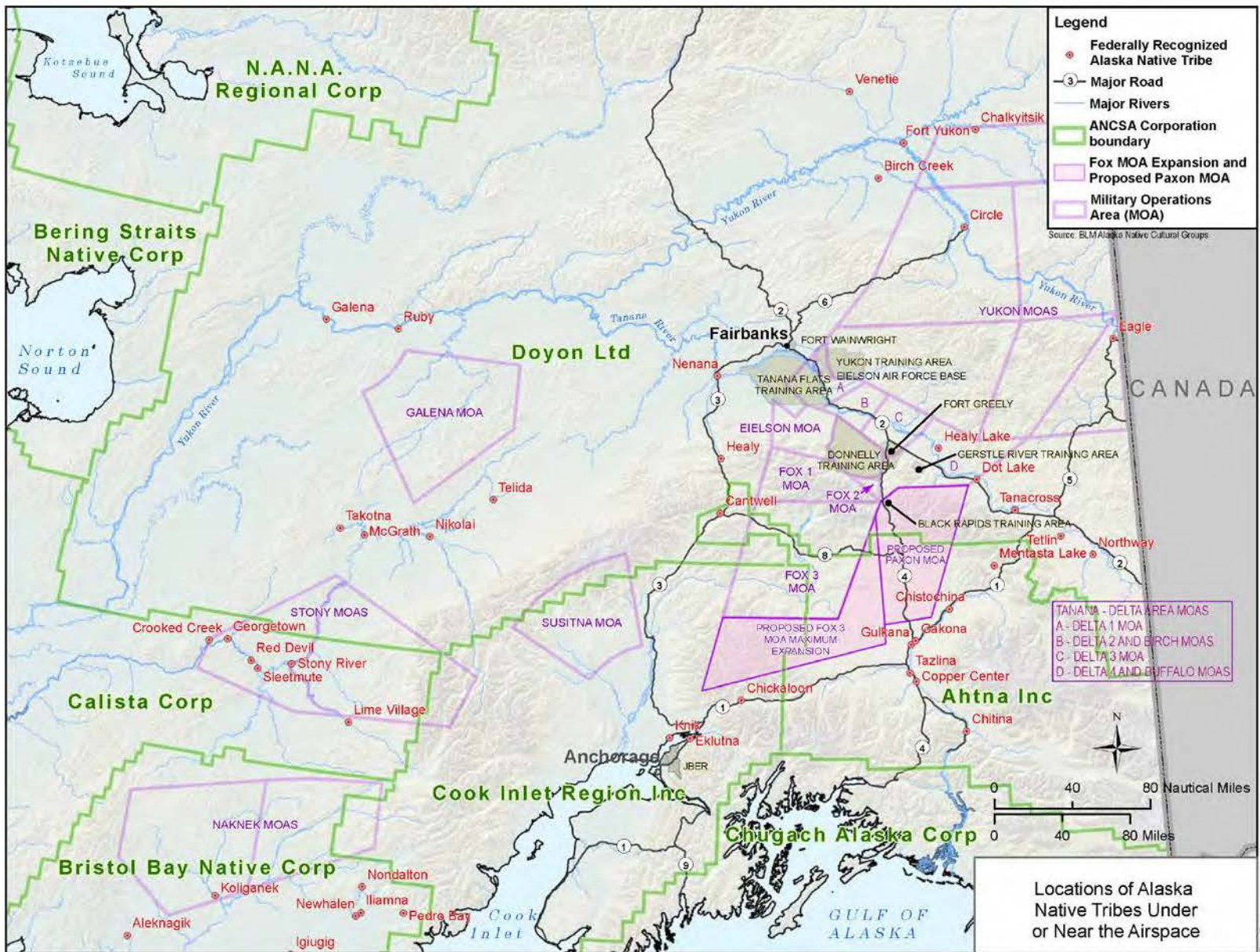


Figure 3-10. Locations of Alaska Native Tribes Under or Near the Airspace

3.1.9.2 Impact Assessment Methodology

Analysis of potential impacts on cultural resources considers both direct and indirect impacts. Direct impacts may occur by physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or alter its setting; or neglect of a resource to the extent that it deteriorates or is destroyed. Direct impacts are assessed by identifying the types and locations of proposed activity and determining the location of cultural resources that could be affected. Indirect impacts result primarily from project-induced population increases and the need for construction to accommodate population growth. Construction activities and the subsequent use of the facilities can impact cultural resources.

Impacts on traditional resources under airspace can include the noise and visual effects of aircraft overflights on rituals and ceremonies and on wildlife resources. Aircraft overflights can also increase the level of effort required to harvest subsistence resources and increase the likelihood of reduced harvest levels during the critical subsistence season.

Scientific studies of the effects of noise and vibration on historic properties have considered potential impacts on historic buildings, prehistoric structures, archaeological cave/shelter sites, and rock art. These studies have concluded that overpressures generated by supersonic overflight were well below established damage thresholds and that subsonic operations would be even less likely to cause damage (see Appendix E, *Noise*). Thus, archaeological and historic architectural resources under airspace were characterized using the records of the National Register and National Historic Landmark Program.

The potential for traditional resources in the area was identified using cultural resources management plans (CRMPs), historic preservation plans, and information provided by installation cultural resources management staff. The potential for traditional resources under airspace was identified using Bureau of Indian Affairs (BIA) maps of reservations and American Indian lands (BIA 1998), the BIA list of Federally recognized tribes, regional histories, and documentation on Alaska Native tribes compiled by the Alaska Department of Community and Economic Development (DCED). In addition, potentially interested Alaska Native groups were contacted to request information on potential concerns about the proposed action.

3.1.9.3 Environmental Consequences

3.1.9.3.1 Alternative A

Alternative A would expand the current Fox 3 MOA boundaries to the south and east and subdivide it into sectors, including a new lower-altitude stratification from 500 feet up to but not including 5,000 feet. In addition, the proposed action would create a new MOA, Paxon, to the east of the current Fox 3 MOA. There would be no construction and minimal ground disturbance under this alternative.

As with previous analyses for existing Alaska MOAs (Air Force 1997-1), no significant impacts are anticipated to cultural resources from the expansion of current Fox 3 MOA boundaries, the addition of a new MOA, and their use for flight training. As described in Section [3.1.2.3](#), subsonic aircraft noise levels beneath the proposed Paxon MOA would increase from 37 to 54 dB L_{dnmr} . Noise levels beneath all subunits of the expanded Fox 3 MOA would increase from 39 dB L_{dnmr} (in areas under existing Fox 3 MOA) or ambient sound levels (in areas not beneath military airspace) to 49 dB L_{dnmr} . The increase in noise would not be sufficient to damage any archaeological or historic architectural sites. Scientific studies of the effects of noise and vibration on historic properties have demonstrated that flight operations would be unlikely to cause damage (see Appendix E, *Noise*). Sonic booms are projected to increase from

an average of 4.6 booms per day to 5.2 booms per day, which is not expected to result in impacts on cultural resources.

In compliance with Section 106 of the National Historic Preservation Act (NHPA), Alaskan Command (ALCOM), on behalf of the Air Force, has completed consultation with the Alaska State Historic Preservation Officer (SHPO) and determined that no historic properties will be affected by implementation of the proposed action. All compliance requirements for consultation with potentially affected Alaska Native tribes, Alaska Native Claims Settlement Act (ANCSA) corporations, and Tribal government entities regarding ALCOM's finding of no historic properties affected has been completed. In accordance with AFI 32-7065 (Air Force 2004-3), all NHPA Section 106 consultation has been completed.

In the event that previously unrecorded or unevaluated cultural resources are encountered, the Air Force would manage these resources in accordance with the NHPA and other Federal and State laws, Air Force and DoD regulations and instructions, and DoD American Indian and Alaska Native policy.

No significant impacts on traditional cultural resources are anticipated to result from the proposed expansion of Fox 3 MOA boundaries and the creation of the new Paxon MOA. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes regarding their concerns about potential impacts on Tribal rights, Tribal resources, or Indian land under the proposed expansion of Fox 3 MOA boundaries and the creation of the new Paxon MOA (see Section [1.6.5](#)).

3.1.9.3.2 Alternative E (Preferred Alternative)

The airspace structure for the Fox 3 MOA expansion under this alternative would be smaller in size from that proposed under Alternative A with the southern boundary moved approximately 20 NM to the north and no subdivisions, as shown in [Figure 2-2](#). This alternative would also include the addition of the new Paxon MOA as described in Alternative A and shown in [Figure 2-2](#). There would be no construction and only minimal ground disturbance with this alternative.

Under Alternative E, impacts would be similar to Alternative A, with no significant impacts anticipated to cultural resources from the expansion of current Fox 3 MOA boundaries, the addition of the new Paxon MOA, and their use for flight training.

3.1.9.3.3 No Action Alternative

Under the No Action Alternative there would be no changes to the existing Fox 3 MOA and no new Paxon MOA. Existing use of the MOA would continue under this alternative, and resources would continue to be managed in compliance with Federal law and Air Force regulations.

3.1.9.4 Mitigations

No mitigations are identified for this resource at this time.

3.1.10 Land Use

3.1.10.1 Affected Environment

Information supporting this section is also found in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.2 (General Description of Affected Environment), and Appendix I (*Land Use, Public Access, and Recreation*).

LAND STATUS, MANAGEMENT AND USE

Land Status

Land ownership in the proposal area is a mixture of Federal, State, local borough, and private land (including Native regional and village corporation land), as shown in [Figure 3-11](#) and tabulated in [Table 3-12](#). Alternative A (composed of areas 1, 2, 3, and 4) is just over 7.5 million acres in size, and Alternative E (composed of areas 1, 2, 4, and 5) is about 6.4 million acres. As the table indicates, most of the land within the proposal area is State-owned.

Table 3-12. Land Status of Lands in the Fox 3 MOA Expansion and New Paxon MOA Proposal Area

Land owner/manager	Proposal Area ¹				
	1	2	3	4	5
Federal (% of total) ²	30%	12%	1%	19%	29%
State (% of total) ³	67%	87%	98%	77%	9%
Private (% of total) ⁴	3%	1%	1%	4%	62%
Total (acres)	3,137,694	1,211,977	1,164,821	2,017,083	31,941

¹ Locations shown in [Figure 3-11](#) (shown in legend key)

1 = Existing Fox 3 MOA

2 = Fox 3 MOA Expansion Area 1 (Alt A and E)

3 = Fox 3 MOA Expansion Area 2 (Alt A only)

4 = New Paxon MOA (Alt A and E)

5 = New Paxon MOA wedge (Alt E only)

² Federal = Federal land in the action areas including land owned by Department of the Interior and the Department of Defense.

³ State = State land in the action area including State patented and State tentatively approved.

⁴ Private = Private land includes Native patented, Native Interim Conveyed, State land disposals (to local boroughs and private), and privately owned land.

Key: MOA=Military Operations Area.

Source: ADNR 2011-1

Population centers underlying the proposal airspace include the census-designated places (CDPs) of Lake Louise and the Native village areas of Cantwell, Dot Lake, Mendeltna, Paxson, Glennallen, Chistochina, Gulkana, and Gakona. Private land accounts for less than 3 percent of the land in the proposal area. Private land is mostly concentrated in these listed communities, but is also dispersed throughout the region. Military land account for less than 1 percent and includes the Army’s Black Rapids Training Area (5,000 acres), just south of Delta Junction on the Richardson Highway and land around Lake Louise. The Northern Warfare Training Center is located at Black Rapids Training Area.

Land Management and Use

Plans developed by the Federal government, the State, local boroughs, municipalities, and Native corporations describe the management intent and priorities for lands within their jurisdictions. A brief description of the primary plans for the 7.5 million-acre proposal area is provided in Appendix I, *Land Use, Public Access, and Recreation*.

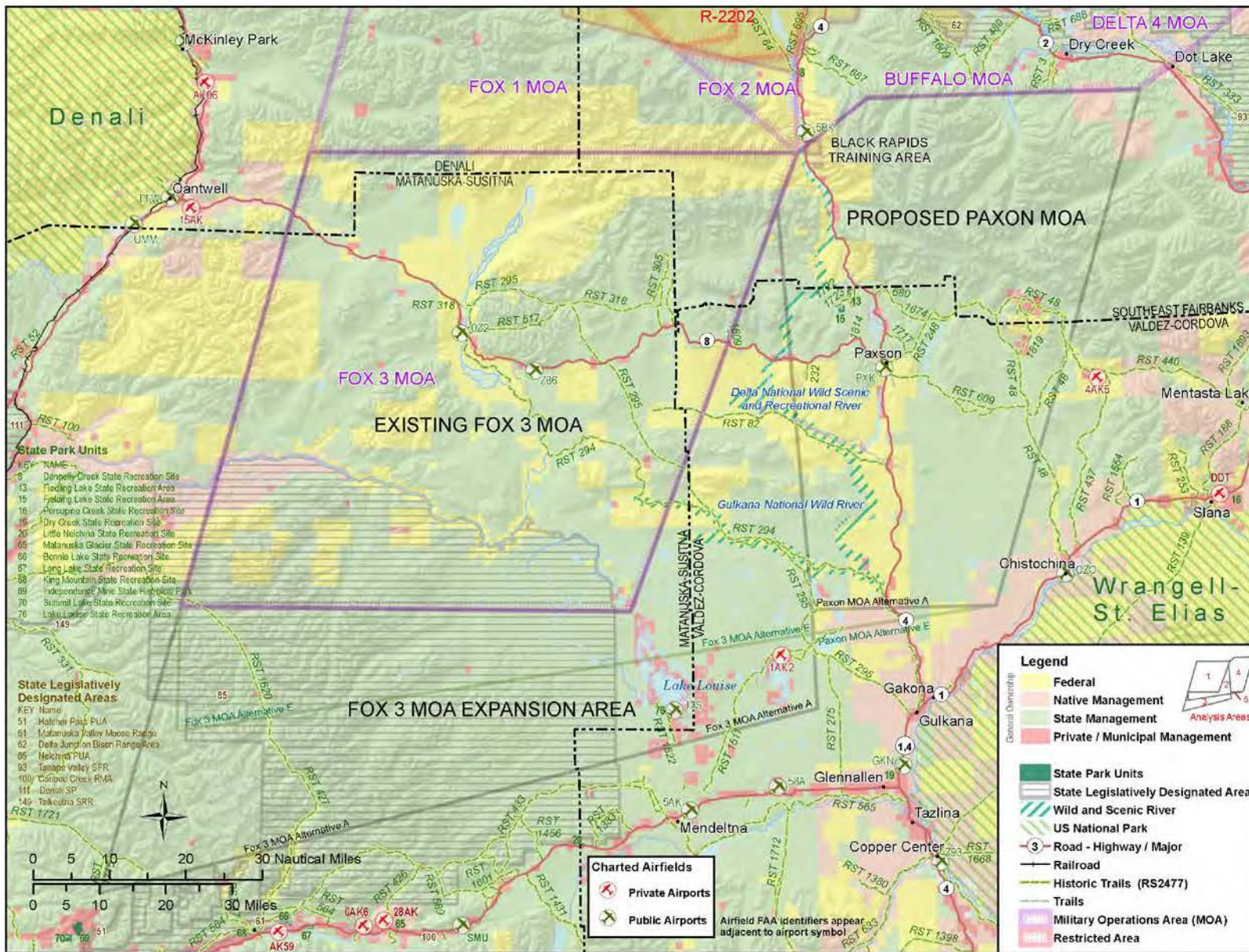


Figure 3-11. Land Status and Special Use Areas in the Fox 3 MOA Expansion and New Paxon MOA Proposal Area

Source: ADNR 2009-1, ADNR 2009-2, ADNR 2009-3, ADNR 2011-2, ADNR 2011-3, BLM 2005, NPS 2009

The State of Alaska and BLM manage the vast majority of lands in the proposal area. The BLM lands are divided into four resource management areas (RMAs): Delta, Denali/Clearwater, Gulkana, and Glennallen/Richardson. Recreation, subsistence activities and mining are primary uses. Several Area Plans (developed by the Alaska Department of Natural Resources [ADNR]) govern the general management priorities of State lands. Both BLM and the ADFG conduct year-round management activities. Game surveys are performed at specific times each year by air and are the basis for setting bag limits for the following hunting season. Surveys are very time-sensitive based on the life cycles of each species and the onset of snow. The routine survey schedule is as follows (surveys marked with asterisks (*) are essential surveys that are conducted every year):

- May 15–June 10: Caribou parturition surveys; moose twinning*, calf survival and periodic mortality surveys; occasional bear surveys
- June 20–July 10: Caribou population estimate and composition surveys*
- Mid-summer: Dall sheep surveys*
- October 1–10: Caribou composition survey*
- Following first adequate snow cover (approximately mid-October) and before December 7: moose population estimates*
- May 5–June 5: Ptarmigan surveys (aircraft access)
- Late March–early April: Watana Su-Hydro winter range moose surveys* (scheduled for the next several years)
- Year-round: Monitoring of moose and caribou movements via aerial radiotelemetry

[Figure 3-12](#) provides a generalized illustration of areas with the heaviest public use. The highest activity levels occur along the Denali and Richardson Highways where trails are accessible into more primitive areas, between the Gulkana and Gakona Rivers, the Tangle Lake Archaeological District area, the Lake Louise and upstream portions of the Tyone River watershed, and the Valdez and Clearwater Creek areas served by two public airports. According to ADFG data for the period from 2008 to 2010, over 90 percent of hunter success in Game Management Units (GMUs) 13, 14, and 20D occurs between mid-August and late September, with another short surge from the end of October to early November (ADFG 2011-1).

Special Use Areas

Federal and State lands with legislatively designated protection in the proposal area are listed in [Table 3-13](#). The area includes 10 areas with special purposes and management based on particular resource values, including refuges, parks, preserves, sanctuaries, critical habitat areas, ranges, and special management areas. Descriptions of special use areas are provided in Appendix I, *Land Use, Public Access, and Recreation*.

**JPARC Modernization and Enhancement
Environmental Impact Statement**

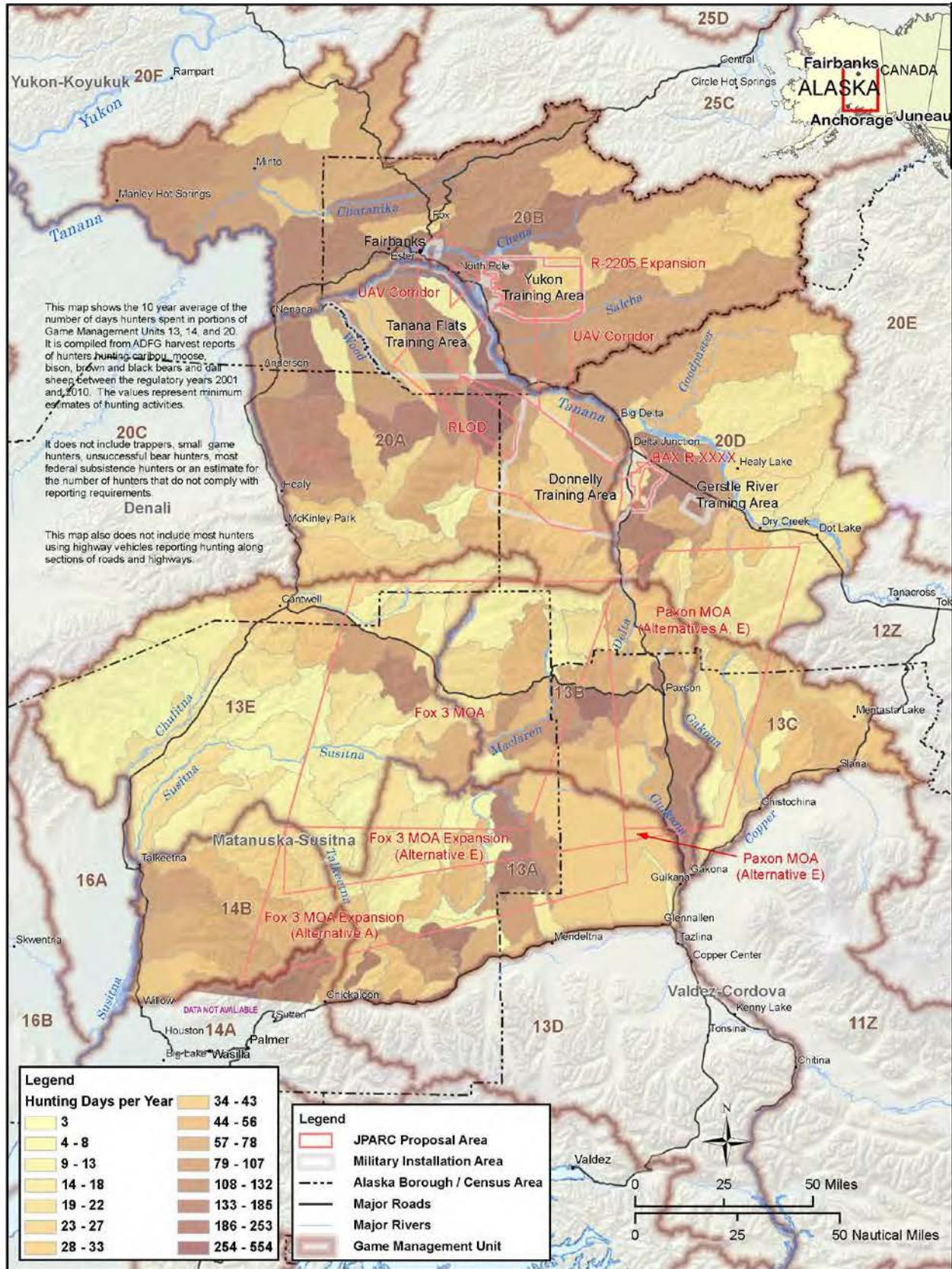


Figure 3-12. Hunter Use Days in the JPARC Region of Influence
 Source: SAIC 2011-1

Table 3-13. Special Use Areas – Fox 3 MOA Expansion and New Paxon MOA Proposal Area

Special Use Area	Total Area (acres)	Proposal Area ¹									
		1		2		3		4		5	
		Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Gulkana National Wild River	92,864	5,020	5%	35,071	38%	0	0%	52,772	57%	0	0%
Delta National Wild and Scenic Recreational River	44,394	0	0%	21,566	49%	0	0%	22,272	50%	0	0%
Lake Louise State Recreation Area	98	0	0%	0	0%	98	0%	0	0%	0	0%
Tangle Lakes Archaeological District	227,866	72,926	32%	130,981	57%	0	0%	24,122	11%	0	0%
Clearwater Creek Controlled Use Area	566,192	562,119	99%	29	0%	0	0%	0	0%	0	0%
Delta Controlled Use Area	990,549	101,468	10%	1	0%	0	0%	324,819	33%	0	0%
Fielding Lake State Recreation Area	570	0	0%	0	0%	0	0%	570	100%	0	0%
Nelchina Public Use Area	2,333,089	657,404	28%	562,518	24%	630,658	0%	0	0%	0	0%
Matanuska Valley Moose Range	131,593	0	0%	0	0%	179	0%	0	0%	0	0%
Kasilof River Special Use Area	2,079,912	22,999	1%	30,312	1%	0	0%	18,065	1%	284	0%

¹ Locations shown in [Figure 3-11](#) (shown in legend)

- 1 = Existing Fox 3 MOA
- 2 = Fox 3 MOA Expansion Area 1 (Alt A and E)
- 3 = Fox 3 MOA Expansion Area 2 (Alt A only)
- 4 = New Paxon MOA (Alt A and E)
- 5 = New Paxon MOA wedge (Alt E only)

² Federal = Federal land in the action areas including land owned by Department of the Interior and the Department of Defense.

³ State = State land in the action area including State patented, State tentatively approved, State land disposals.

⁴ Private = Private land includes Native patented, Native Interim Conveyed, and privately owned BLM land.

Key: MOA=Military Operations Area.

Source: ADNR 2009-1, ADNR 2011-3, BLM 2005, BLM 2011, SAIC 2011-2

On Federal land, BLM has designated the Delta River and the Gulkana River as Special Recreation Management Areas. The Gulkana, Delta Wild, and Scenic River areas are popular for recreation and fishing. On State land, Nelchina Public Use Area (PUA) is widely used for recreation, hunting, and mining and is accessible to persons in Anchorage, Wasilla, and Glennallen. It encompasses 2.5 million acres of State land in the Talkeetna Mountains and was established by the State legislature to protect, perpetuate, and enhance the fish and wildlife habitat and public enjoyment by the activities of fishing, hunting, trapping, recreation, and other public uses. It has been managed for multiple-use under the guidelines of the 1985 Susitna Area Plan and now under the 2010 Susitna Matanuska Area Plan, currently under appeal. Nelchina PUA has an extensive trail network, and landing strips provide for air access to Steve Langford, Jacko, Tyone, and Red Creeks. Tangle Lakes Archaeological District is a management priority area for ADNR and portions underlie the Fox 3 MOA, the proposed Fox 3 expansion area, and the new Paxon MOA. Most of the Clearwater Controlled Use Area (CUA) underlies the existing Fox 3 MOA and about one-third of the Delta CUA underlies the proposed Paxon MOA.

Resource and Productive Use

The proposal area supports a range of productive uses and productive resource potential. The locations of energy resources, energy assets, and productive sites are shown in [Figure 3-13](#). [Figure 3-14](#) shows the location of high potential renewable resource areas and existing productive sites.

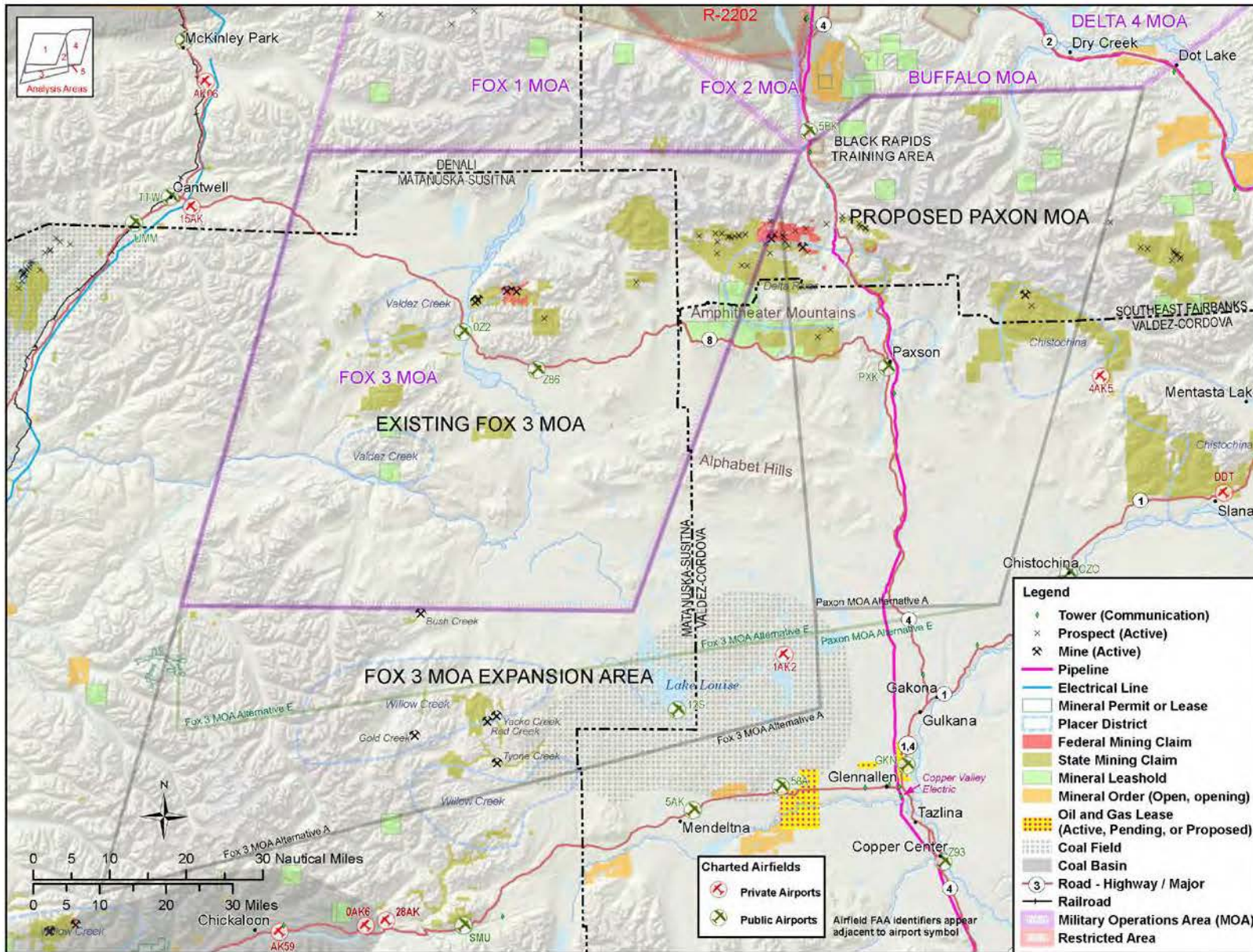


Figure 3-13. Energy and Productive Uses in the Fox 3 MOA Expansion and New Paxon MOA Proposal Area

Source: ADNR 2009-4, ADNR 2010-1, ADNR 2010-2, ADNR 2011-4, ADNR 2011-5, ADNR 2011-6, ADNR 2011-10, ADNR 2011-11, ADNR 2011-12, ADNR no date, BLM 2007, NGA no date, USGS 2005-1, USGS 2005-2

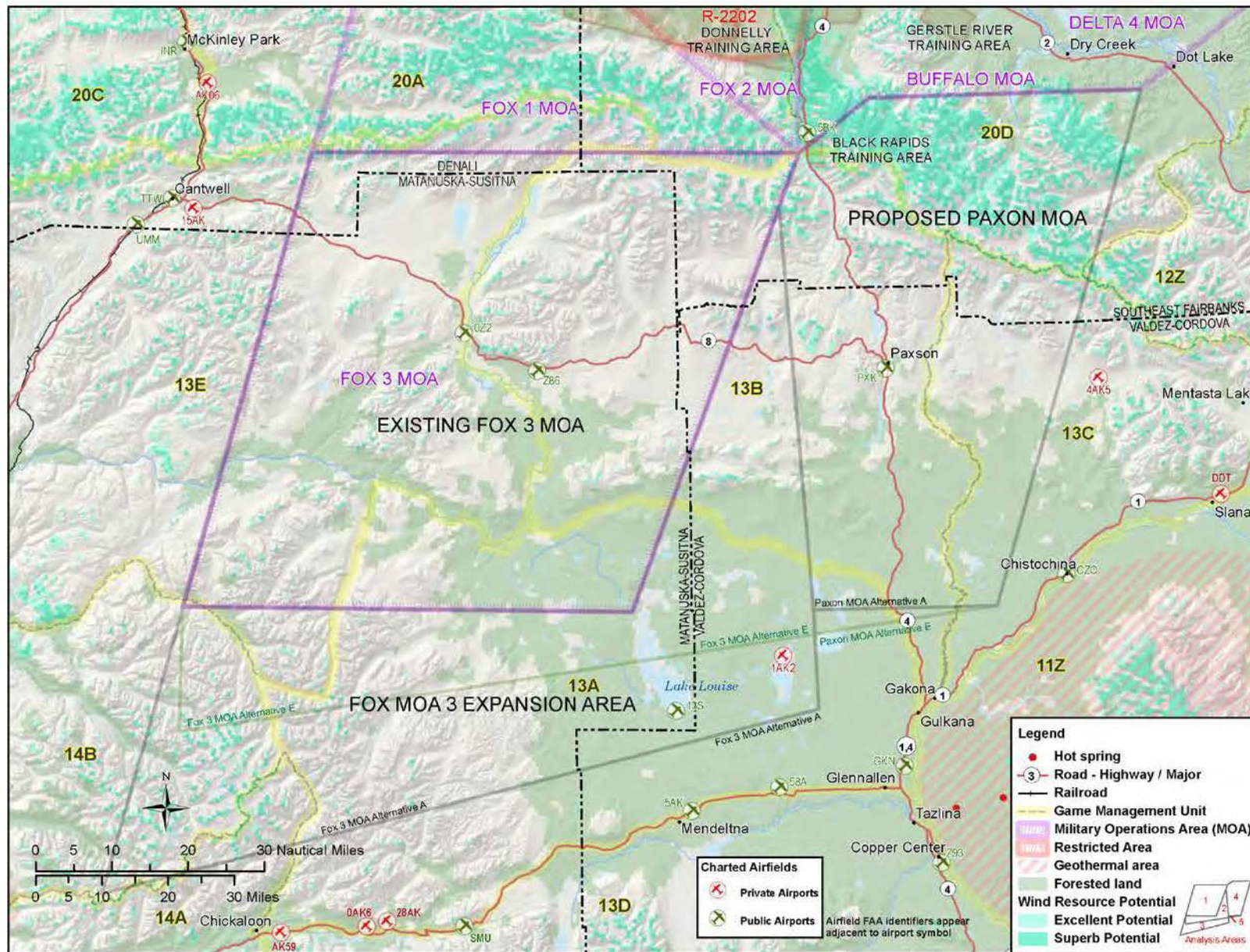


Figure 3-14. Renewable Resources in the Fox 3 MOA Expansion and New Paxon MOA Proposal Area

Source: ADNR 2010-3, ADNR 2010-4, AWS TrueWind/NREL 2003, USGS 1991

The proposal area has 29 mineral claims on a total of 18,444 acres, mineral leaseholds on 124,000 acres, mineral estate orders on 161,100 acres, and 15 prospecting sites occupying 9,250 acres. The area is covered by over 2 million acres of forest, and has excellent and superb wind energy potential on 230,300 acres (along the southern mountain ridges and inclines). Placer deposits (for precious metals) lie east and west of Paxson and localized oil accumulations north of Gulkana and along the Richardson Highway north of Paxson. The Alphabet Hills and Amphitheater Mountains (Delta River district) have high mineral potential with active placer mining and potential for future year round operations. Many active mines in the south Fox 3 area. In the Nelchina area, Gold, Bush, Red, Willow, Tyone, and Jacko Creeks have active placer mines (Willow Creek district). Placer mining mostly takes place in the summer months. Many mines are serviced by commercial air service operations, and supplies and equipment are also brought in along trails when there is snow cover. Some areas such as Bush Creek are only accessible by air. Mining is also active north of the Denali Highway under the existing Fox 3 MOA (Valdez Creek area), and further east under the proposed Paxson MOA in the Chistochina district.

Localized oil accumulations are located north of Gulkana and along the Richardson Highway north of Paxson. Mineral and oil exploration relies on air access for surveys and crew support, usually flying VFR at lower altitudes (5,000 feet AGL).

Many lakes and rivers in the area are popular for tourism, vacationing, and outdoor sports such as hunting and fishing (for example, the areas around Lake Louise, Tangle Lakes, and Summit Lake). Many Alaskans make livelihoods centered around these activities that rely on the great natural beauty of the region.

Federal and State land managers prioritize the use of lands based on resources, attributes, and local values. In the proposal area, about 6.5 million acres are classified (by ADNR) for its habitat value. BLM lands are associated with the two Wild and Scenic Rivers in the proposal area.

Private and Native Lands

Private parcels and residential lands within the proposal area account for about 3 percent of the proposal area. Private land is used for a range of commercial and productive uses, and some is used for settlement and homesteading. Residential use is associated with cities, villages, settlements, homesteads, designated census places, and undesignated clusterings of dwellings. Further discussion of Native-owned lands and resources is provided in Section [3.1.13.2](#), Subsistence. Communities, Native villages, and populated areas underlying the airspace associated with the Fox 3 MOA proposal are listed in [Table 3-14](#). There are also 71 Native allotments (each 160 acres or less); the majority located in the southern part of the proposed Fox 3 MOA expansion area.

Locations of Interest

During public scoping for this EIS, members of the public and government agency representatives provided the names and locations of several sites and areas valued for particular resources, purposes, and uses. These locations are illustrated in Figure A-1 and listed in Table A-6 (in Appendix A, *Public Scoping Summary*). [Table 3-14](#) lists locations of interest that occur within the Fox 3 MOA proposal area and were identified frequently during the scoping process.

Chapter 3.0 – Affected Environment and Environmental Consequences
3.1 Fox 3 MOA Expansion and New Paxon MOA (Definitive)

Table 3-14. Locations of Interest – Fox 3 MOA Expansion and New Paxon MOA Airspace

Location	Land Use Characteristic	Proposal Area ¹				
		1	2	3	4	5
Area around Tok ²	Community					
Area south of Denali Highway	Habitat, hunting, recreation	X	X			
Cantwell	Community					
Clarence Lake	Recreation, fishing	X				
Copper River Valley/Basin	Natural resources, recreation, hunting				X	X
Crosswind Lake	Recreation, fishing			X		
Eagle River ²	Community					
Delta National Wild and Scenic River	Pristine areas, recreation		X		X	
Delta Range	Natural area				X	
Denali Highway	Scenic areas, tourism	X	X			
Fielding Lake	Recreation, fishing				X	
Gakona	Community					
Game Management Unit 13	Hunting, habitat, wildlife	X	X	X	X	X
Glennallen	Community					
Gulkana National Wild and Scenic River	Pristine areas, recreation	X	X		X	
Lake Louise	Community			X		
Lake Louise Recreation Area	Recreation, commercial businesses			X		
MacLaren River Lodge	Recreation, business	X				
Meiers Lake	Recreation, fishing					
Mountains east of Talkeetna	Recreation, hunting, naturalness	X				
Nelchina						
Nelchina PUA	Recreation, hunting, fishing	X	X	X		
Oshetna River		X	X	X		
Paxson	Community				X	
Paxson Lake	Natural feature, recreation				X	
Private land (throughout)	Residences	X	X	X	X	X
Richardson Highway	Scenic areas, tourism				X	X
Sourdough Lake	Recreation, fishing				X	
Summit Lake	Recreation, fishing				X	
Susitna Lake	Recreation, fishing		X	X		
Tangle Lakes	Recreation, fishing		X		X	
Upper Copper River	Naturalness, fishing				X	X
Upper Susitna River	Naturalness, fishing	X	X	X		

¹ Proposal Areas 1–5 shown on [Figure 3-11](#) (shown in legend)

- 1 = Existing Fox 3 MOA
- 2 = Fox 3 MOA Expansion Area 1 (Alt A and E)
- 3 = Fox 3 MOA Expansion Area 2 (Alt A only)
- 4 = New Paxon MOA (Alt A and E)
- 5 = New Paxon MOA wedge (Alt E only)

² Not within the Alternative E Fox 3 expansion area

Key: MOA=Military Operations Area; PUA=Public Use Area.

Source: ADNR 2009-1, ADNR 2009-5, ADNR 2011-3, BLM 2005, BLM 2011, SAIC 2011-2

PUBLIC ACCESS

Land Access

Revised Statute (RS) 2477–designated routes within the ROI for this proposal are listed in [Table 3-15](#). [Figure 3-11](#) shows the locations of the listed trails. There are extensive trail networks throughout the area, especially in the Nelchina PUA, along Denali Highway, and along Richardson Highway into the Delta and Gulkana Wild and Scenic River areas.

Table 3-15. Public Access Trails Within the Region of Influence of the Fox 3 MOA Expansion and New Paxon MOA Proposed Action and Alternatives

Public Access	Designation/#	Length (miles)
Glacier Gap Lake Trail (a.k.a. Lavery)	RS2477 Trail / RST 1809	2
Chickaloon River Trail	RS2477 Trail / RST 427	23
Chisana–Slate Creek	RS2477 Trail / RST 1819	9
Chistochina–Slate Creek	RS2477 Trail / RST 48	58
Delta River Trail	RS2477 Trail / RST 1674	26
Fielding Lake Trail – north shore	RS2477 Trail / RST 1722	4
Fielding Lake Trail – south shore	RS2477 Trail / RST 1723	3
Gulkana–Denali (winter)	RS2477 Trail / RST 294	113
Gulkana–Valdez Creek (summer)	RS2477 Trail / RST 295	85
Kashwitna River Trail	RS2477 Trail / RST 1721	6
Lake Louise Road to Ewan Lake	RS2477 Trail / RST 1511	26
Lake Louise Trail	RS2477 Trail / RST 1522	8
McClaren River Trail	RS2477 Trail / RST 305	13
Meiers Lodge–Dickey Lake	RS2477 Trail / RST 82	41
Mentasta-Slate Creek	RS2477 Trail / RST 440	16
Moores Lake Trail	RS2477 Trail / RST 680	4
One Mile Trail	RS2477 Trail / RST 609	32
Paxson–Denali (Valdez Creek)	RS2477 Trail / RST 318	35
Paxson–Slate Creek	RS2477 Trail / RST 248	31
Richardson Highway–Fish Lakes Trail	RS2477 Trail / RST 1717	5
Sevenmile Lake Trail (Denali Highway)	RS2477 Trail / RST 1814	< 1
Swede Lake–Little Swede Lake–Denali Highway	RS2477 Trail / RST 232	3
Talkeetna River Trail	RS2477 Trail / RST 1620	25
Windy Creek Access Road	RS2477 Trail / RST 517	18

Source: ADNR 2009-2

Aerial Access

A complete list of the public and private airports and airstrips in the ROI for this proposal is provided in Appendix D, *Airspace Management*, Table D–5, [Table 3-16](#), and shown on [Figure 3-11](#). [Table 3-16](#) identifies the communities and special areas served by chartered airports and airfields in the Fox 3 MOA proposal area.

Table 3-16. Charters Airports and Airfields Serving the Fox 3 MOA Proposal Area

Chartered Airport	Areas Underlying or Within 20-mile Service Radius	
	Community	Communities and Special Use Areas
Anderson Lake Airport (OAK1)	Palmer, Sutton, Big Lake, Wasilla, Knik, Houston, Eklutna, Fishhook CDP, Palmer City, Gateway CDP, Buffalo Soapstone CDP, Willow CDP, Farm Loop CDP, Butte CDP, Big Lake CDP, Meadow Lakes CDP, Sutton-Alpine CDP, Lazy Mountain CDP, Knik River CDP, Tanaina CDP, Knik-Fairview CDP, Lakes CDP, Anchorage Municipality	Hatcher Pass PUA, Palmer Hay Flats SGR, Matanuska Valley Moose Range, Willow Mountain CHA, Knik River PUA, Lake Susitna SRR, Chugach SP, Summit Lake SRS, Big Lake North SRS, Hanson Memorial SRS, Independence Mine State Historic Park, Kepler-Bradley SRA, Rocky Lake SRS, Big Lake SRS, Finger Lake SRS, Wolf Lake SRS
Black Rapids (5BK)	Fort Greely CDP, Deltana CDP	Delta National Wild and Scenic and Recreational River, Donnelley Creek SRS
Cantwell Airport (TTW)	Cantwell, Cantwell CDP, McKinley Park CDP	Denali National Park
Chistochina (CZO)	Chistochina, Chistochina CDP, Gakona CDP	Wrangell-St. Elias National Park
Clearwater (Z86)	None	None
Cottonwood Lake Seaplane Base (3H3)	Eklutna, Palmer, Sutton, Knik, Big Lake, Houston, Wasilla, Tanaina CDP, Buffalo Soapstone CDP, Butte CDP, Palmer City, Houston City, Wasilla City, Lazy Mountain CDP, Willow CDP, Fishhook CDP, Anchorage Municipality, Meadow Lakes CDP, Farm Loop CDP, Sutton-Alpine CDP, Gateway CDP, Knik River CDP, Big Lake CDP, Lakes CDP, Knik-Fairview CDP, Willow Mountain CHA	Chugach SP, Matanuska Valley Moose Range, Palmer Hay Flats SGR, Knik River PUA, Little Susitna SRR, Hatcher Pass PUA, Big Lake North SRS, Hanson Memorial SRS, Summit Lake SRS, Finger Lake SRS, Independence Mine SRS, Big Lake South SRS, Kepler-Bradley SRA, Rocky Lake SRS, Wolf Lake SRS
Crosswind Lake Airport (1AK2)	Tolsona CDP, Lake Louise CDP, Glennallen CDP, Mendeltna CDP, Gakona CDP, Gulkana CDP	Gulkana National Wild River, Lake Louise State Recreation Area
Denali Airport (AK06)	Healy, McKinley Park, Cantwell, Healy CDP, McKinley Park CDP, Cantwell CDP	Denali National Park, Dry Creek Site State Park
Farrars Airport (28AK)	Chickaloon, Chickaloon CDP, Glacier View CDP, Eureka Roadhouse CDP	Nelchina PUA, Matanuska Valley Moose Range, Knik River PUA, Caribou Creek RMA, Long Lake SRS, Bonnie Lake SRS, Matanuska Glacier SRS
Finger Lake Seaplane Base (99Z)	Sutton, Wasilla, Big Lake, Palmer Knik, Houston, Eklutna, Buffalo Soapstone CDP, Houston City, Fishhook CDP, Sutton-Alpine CDP, Wasilla City, Knik River CDP, Butte CDP, Knik-Fairview CDP, Gateway CDP, Anchorage Municipality, Lazy Mountain CDP, Willow CDP, Big Lake	Hatcher Pass PUA, Willow Mountain CHA, Chugach SP, Knik River PUA, Matanuska Valley Moose Range, Palmer Hay Flats SGR, Little Susitna SRR, Wolf Lake SRS, Summit Lake SRS, Kepler-Bradley SRA, Big Lake North SRS,

Table 3-16. Charted Airports and Airfields Serving the Fox 3 MOA Proposal Area (Continued)

Charted Airport	Areas Underlying or Within 20-mile Service Radius	
	Community	Communities and Special Use Areas
	CDP, Meadow Lakes CDP, Chickaloon CDP, Tanaina CDP, Lakes CDP, Farm Loop CDP, Palmer City	Independence Mine SHP, Big Lake South SRS, Rocky Lake SRS, Finger Lake SRS, Hanson Memorial SRS
Golden North Airfield Airport (15AK)	Cantwell, Cantwell CDP, McKinley CDP	Denali National Park
Gulkana Airport (GKN)	Tazlina, Gulkana, Copper Center, Glennallen, Gakona, Gulkana CDP, Copper Center CDP, Glennallen CDP, Mendeltna CDP, Gakona CDP, Silver Springs CDP, Willow Creek CDP, Willow Creek CDP, Tolsona CDP, Tazlina CDP,	Wrangell-St. Elias National Park, Dry Creek SRS
Jonesville Mine Airport (JVM)	No longer in service	
King Ranch Airport (AK59)	Sutton, Chickaloon, Lazy Mountain CDP, Glacier View CDP, Sutton-Alpine CDP, Chickaloon CDP	Knik River PUA, Matanuska Valley Moose Range, Nelchina PUA, Matanuska Glacier SRS, King Mountain SRS, Long Lake SRS, Bonnie Lake SRS
Lake Louise Airport (Z55)	No longer in service	
Lake Louise Seaplane Base (13S)	Nelchina, Mendeltna, Mendeltna CDP, Glennallen CDP, Nelchina CDP, Eureka Roadhouse CDP, Tolsona CDP, Lake Louise CDP,	Nelchina PUA, Lake Louise State Recreation Area.
Mankomen Lake Airport (4AK5)	Chistochina CDP, Mentasta Lake CDP	Wrangell-St. Elias National Park
Paxson Airport (PXK)	Paxson, Paxson CDP	Gulkana National Wild River, Delta National Wild Scenic and Recreational River, Fielding Lake SRA
Road Commission (NR1)	None	None
Sheep Mountain Airport (SMU)	Nelchina CDP, Glacier View CDP, Eureka Roadhouse CDP	Nelchina PUA, Caribou Creek RMA, Matanuska Glacier SRS
Tazlina Airport (Z14)	Nelchina, Mendeltna, Glennallen CDP, Lake Louise CDP, Nelchina CDP, Mendeltna CDP, Tolsona CDP, Eureka Roadhouse CDP	Nelchina PUA, Little Nelchina SRS, Lake Louise SRA
Tazlina/Smokey Lake/Seaplane Base (5AK)	Mendeltna, Nelchina, Glennallen CDP, Mendeltna CDP, Tolsona CDP, Eureka Roadhouse CDP, Nelchina CDP, Lake Louise CDP,	Nelchina PUA, Little Nelchina SRS, Lake Louise SRS
Tolsona Lake Seaplane Base (58A)	Glennallen, Mendeltna, Nelchina, Gulkana CDP, Glennallen CDP, Lake Louise CDP, Mendeltna CDP, Nelchina CDP, Tolsona CDP, Tazlina CDP	Wrangell-St. Elias National Park, Dry Creek SRS, Lake Louise SRS

Table 3-16. Charted Airports and Airfields Serving the Fox 3 MOA Proposal Area (Continued)

Charted Airport	Areas Underlying or Within 20-mile Service Radius	
	Community	Communities and Special Use Areas
Victory Airport (SMU)	Chickaloon, Chickaloon CDP, Glacier View CDP, Eureka Roadhouse CDP	Matanuska Valley Moose Range, Nelchina PUA, Knik River PUA, Caribou Creek RMA, Bonnie Lake SRS, King Mountain SRS, Matanuska Glacier SRS, Long Lake SRS
Wasilla Creek Airpark Airport (05AK)	Wasilla, Eklutna, Sutton, Palmer, Anchorage Municipality, Butte CDP, Gateway CDP, Chickaloon CDP, Farm Loop CDP, Tanaina CDP, Fishhook CDP, Knik River CDP, Houston City, Lazy Mountain CDP, Wasilla City, Big Lake CDP, Sutton-Alpine CDP, Meadow Lakes CDP, Buffalo Soapstone CDP, Lakes CDP, Willow CDP, Knik-Fairview CDP, Palmer City	Willow Mountain CHA, Hatcher Pass PUA, Palmer Hay Flats SGR, Knik River PUA, Chugach SP, Matanuska Valley Moose Range, Little Susitna SRR, Wolf Lake SRS, Hanson Memorial SRS, Finger Lake SRS, Independence Mine SHP, Kepler-Bradley SRA, Summit Lake SRS
Wolf Lake Airport (4AK6)	Big Lake, Knik, Sutton, Wasilla, Palmer, Eklutna, Houston, Farm Loop CDP, Wasilla City, Willow CDP, Lakes CDP, Anchorage Municipality, Knik River CDP, Houston City, Big Lake CDP, Palmer City, Butte CDP, Buffalo soapstone CDP, Chickaloon CDP, Meadow Lakes CDP, Tanaina CDP, Fishhook CDP, Gateway CDP, Knik-Fairview CDP, Lazy Mountain CDP, Sutton-Alpine CDP	Palmer Hay Flats SGR, Little Susitna SRR, Chugach SP, Willow Mountain CHA, Matanuska Valley Moose Range, Hatcher Pass PUA, Knik River PUA, Big Lake North State Recreation Site, Wolf Lake SRS, Independence Mine SHP, Kepler-Bradley SRA, Summit Lake SRS, Rocky Lake SRS, Finger Lake SRS, Big Lake South SRS, Hanson Memorial SRS

Note: Bold text indicates that the airport is located under the proposed airspace for this proposal.

Key: CDP=Census Designated Place; CHA=Critical Habitat Area; PUA=Public Use Area; RMA=Resource Management Area; SGR=State Game Refuge; SP=State Park; SRS=State Recreation Site; SRA=State Recreation Area; SRR=State Recreation River.

Source: FAA 2011-6; AirNav 2011.

Navigable and Public Waters

There are many rivers, streams, and lakes within the proposal area. Some of these features are likely designated as navigable and public waters, including portions of the Gulkana, Delta, and Tyone Rivers as well as Lake Louise, Crosswinds Lake, Ewan Lake, Paxon Lake, and Tangle Lakes (ADFG 2011-2).

RECREATION

Recreation on Military Lands

Black Rapids Training Area underlies the proposed new Paxon MOA and is available for public recreational use. The DoD also has interest in a small parcel around Lake Louise under the proposed expanded Fox 3 MOA, which is available only to military personnel.

Recreation on Non-military Lands

The general recreational uses and opportunities provided in the region are described in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.3.3. Federally and State-designated

recreation areas and lands within the ROI for this proposal are listed in [Figure 3-12](#). Recreational uses and values of the special use areas are described in Appendix I, *Land Use, Public Access, and Recreation*. Federally designated recreation lands within the ROI include the Gulkana National Wild River and the Delta National Wild and Scenic Recreational River. State-designated recreation areas include Lake Louise State Recreation Area, Fielding Lake State Recreation Area, Nelchina PUA, and Matanuska Valley Moose Range.

Other lands that are managed for multiple uses, including recreation, are Brushkana Creek–Fairbanks Area, areas within the Hatcher Pass Management Plan, Copper River Basin, areas within the Delta-Salcha Area Plan, areas within the Glenn Highway Subregion, Kasilof River Special Use Area, areas within the Lake Louise Subregion, Loon Lake, Matanuska Valley, areas within the Talkeetna Mountains Subregion, and areas within the Tanana Basin Area Plan. Several popular campgrounds are easily accessible from the Richardson and Denali Highways, including Sourdough Creek, Paxson Lake, and the Brushkana and Tangle Lake campgrounds. [Table 3-17](#) shows the level of recent use and top recreational activities that occurred on trails and campgrounds within the portions of the Denali/Clearwater, Delta, Gulkana, and Glennallen/Richardson Recreation Management Areas within the action area (BLM 2011). As reported in the table, areas with the highest levels of activity are the Tangle Lakes, Paxson, Brushkana, and Sourdough campgrounds. Several trails are also heavily used, such as those at Tangle Lakes, One Mile Creek and down to Gulkana River. Peak use periods regularly occur from June 27 to July 11, August 10 through September 20 and October 21 to November 30; however, the timing can vary from year to year.

Recreation activities occur in undesignated recreation resource areas on Federal, State, and private lands throughout the proposal area. Depending on proximity to communities, highways, or other development, these lands range from semimodern to primitive in setting and recreational opportunity.

Hunting, trapping, berry-picking, mountaineering, and fishing are important recreational activities for Alaskans, out-of-state visitors, and tourists. The ADFG has responsibility for managing these resources in accordance with bag limits, permits, and other applicable State regulations. The proposal area overlaps with GMUs 13A, 13B, 13C, 13E, 14A (small portion), 14B (small portion), 20A (small portion), and 20D (small portion). Descriptions of the management priorities and recreational uses for these units are provided in Appendix I, *Land Use, Public Access, and Recreation*.

GMU 13 is an important moose and caribou hunting area, likely the most heavily used area in the state due to accessibility of the area to residents from Anchorage, the Matanuska Susitna Borough, and Fairbanks. In 2010, 5,015 individual moose hunters reported hunting in GMU 13, a number that has been steadily increasing since 2002. This increase is partially credited to the current active management programs which the state has invested significant time and energy to increase moose abundance for the benefit of consumptive users. Current objectives for moose are being achieved, with some additional increases planned. The overall management objective is to maintain a high level of harvestable moose with sufficient hunter participation annually to avoid habitat impacts. Caribou hunting is also highly popular with 4,887 hunters reporting hunting this area in 2010, with a peak participation of 19,397 hunters in 1996. As shown by the above discussion, GMU 13 is an important moose and caribou hunting area.

Information in comments from ADFG identified the following additional areas with important trails and recreational and hunting opportunities include: Denali Highway between Cantwell and Paxson, Richardson Highway between Gulkana and Black Rapids, Tok Cutoff (Glenn Highway) between Gakona and Mentasta, Gakona/Chistochina River drainages, Upper Susitna River drainage (above Tyone River), Brushkana River drainage, Coal Creek drainage, Watana Creek drainage, Crosswind Lake, Upper Nenana River/Wells Creek area, Lake Louise/ Susitna/ Tyone Lake system, Maclaren River drainage, Tangle Lake system, Hungry Hollow/ Paxson/ Summit/ Fielding Lake areas, Swede Lake drainage in Hungry

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3.1 Fox 3 MOA Expansion and New Paxon MOA (Definitive)

Hollow down to the Alphabet Hills (bordered on the south by the West Fork Gulkana River), Gillespie/ June/ Nita/ Dick Lakes along the Richardson Highway south of Paxon, and throughout Nelchina PUA.

Additional popular trails for hunting and other recreating are located along the Maclaren River, throughout the Glacier Lake/Sevenmile Lake/Maclaren River area, notably: Round Top trail, Ewan Lake Trails, Lake Louise/Crosswind Trail, Tolsona Lake/Crosswind Trail, Butte Lake Trail, Coal Creek trail (starts east of Butte Lake), Moore’s Camp Trail, Chistochina River Trail, Mankomen Lake Trail, Indian River Trail, Slana River Trail, Round Top Trail, Ewan Lake Trails, Butte Lake Trail, Coal Creek trail, Moore’s Camp Trail, Chistochina River Trail, Mankomen Lake Trail, Indian River Trail, Slana River Trail, Oshetna/ Black River/ Goose Creek/ Busch Creek/ Clarence Lake Trail, Moore Lake/Gravling Lake/Marie Lake Trail.

Table 3-17. Trails and Key Recreation Sites in the Expand Fox 3/New Paxon MOA Proposal Area

Trail/Site	Total Visits	% of Area Total	Top Activities (based on number of participants)	Proposal Area ¹				
				1	2	3	4	5
Denali/Clearwater Recreation Management Area								
Clearwater Wayside	7,917	11%	Staging/Comfort Stop; Viewing-Other	X				
Brushkana Creek C.G.	11,964	17%	Viewing-Other; Viewing- Interpretive Exhibit	X				
Brushkana Creek Cabin Trail	900	1%	Access route	X				
Landmark Gap South	714	1%	Access route		X			
Osar Lake Trail	1,022	1%	Access route	X				
Butte Creek Trail	1,600	2%	Access route	X				
Butte Lake Trail	1,600	2%	Access route	X				
Susitna Overlook Trail	100	0%	Access route	X				
Windy Creek Trail	500	1%	Access route	X				
Valdez Creek Trail	1,000	1%	Access route	X				
Brushkana Creek Trail South	300	0%	Access route	X				
Seattle Creek Trail	200	0%	Access route	X				
Mile 87.6	100	0%	Access route	X				
Total visits	71,477							
Glennallen/Richardson Recreation Management Area								
Sourdough/Ewan Lake Trail	300	2%	Access route				X	X
Old Richardson Trail	100	1%	Access route				X	
Hogan Hill #1 Trail	275	2%	Access route				X	
Hogan Hill #2 Trail	50	0%	Access route				X	
Round Top Trail MP 170	300	2%	Access route				X	
Spring Lake Trail MP 173	300	2%	Access route				X	
Mile 174 East Trail MP175.5	300	2%	Access route				X	
Gakona River Overlook MP 179	500	4%	Access route				X	
One Mile Cr./Wolverine Mtn.	1,000	8%	Access route				X	
Castner Glacier Trail	750	6%	Access route				X	
Total visits	12,917							

**Table 3-17. Trails and Key Recreation Sites in the Expand Fox 3/New Paxon MOA Proposal Area
(Continued)**

Trail/Site	Total Visits	% of Area Total	Top Activities (based on number of participants)	Proposal Area ¹				
				1	2	3	4	5
Gulkana River Recreation Management Area								
Sourdough Campground	14,890	39%	Viewing-Other; Viewing-Interpretive				X	
Gulkana River Recreation Management Area (Continued)								
Paxson Lake Campground	11,786	31%	Viewing-Other; Viewing-Interpretive Exhibit; Staging/Comfort Stop				X	
Gulkana River Raft Trail	3,171	8%	Viewing-Wildlife; Viewing-Other				X	
10 Mile Cabin	100	0%	Staging/Comfort Stop; Cabin Use				X	
Swede Lake Trail	2,109	5%	Access route				X	
Middle Fork Trail	1,012	3%	Access route				X	
Haggard Creek Trail	250	1%	Access route				X	
June Lake Trail	69	0%	Access route				X	
Gillespie Lake Trail	251	1%	Access route				X	
Mile 152 West Trail	150	0%	Access route				X	
Sourdough Creek CG Trail	488	1%	Access route				X	
Dickey Lake Trail	210	1%	Access route				X	
Total visits	38,360							
Other Areas								
Tangle Lakes Campground	12,142	42%	Viewing-Wildlife; Viewing-Other		X			
Upper Tangles	297	1%	Viewing-Other; Viewing-Wildlife; Row/Float/Raft		X			
Round/Lower Tangle Lakes	662	2%	Viewing-Other; Viewing-Wildlife		X			
Top-of-the-World/Yost Trail	722	3%	Access route	X				
Tangle Lakes Foot Trail	2,428	8%	Access route		X			
Total visits	28,591							

¹ Proposal areas 1 to 5 correlate to [Figure 3-11](#) (see legend)

- 1 = Existing Fox 3 MOA
- 2 = Fox 3 MOA Expansion Area 1 (Alt A and E)
- 3 = Fox 3 MOA Expansion Area 2 (Alt A only)
- 4 = New Paxon MOA (Alt A and E)
- 5 = New Paxon MOA wedge (Alt E only)

² Not in Proposal Area

Source: BLM 2011.

HUNTING

The primary hunted species in the proposal area include black bear, grizzly (brown) bear, caribou, moose, goat, sheep, wolverine, ptarmigan, and wolf. Specific seasonal restrictions on hunting each species and descriptions of how such restrictions apply to residents and nonresidents are provided on the ADFG website. Hunting seasons start in August but the dates for specific species can shift from year to year.

Usually the beginning of season is pre-determinable, but may extend until the allowed harvest limits are reached. In general, the period from mid-August to the end of September is the most intensive for hunting caribou, moose, and various other species in Alaska. Bear have a long season (most of or all year). Sheep have a 40-day season that overlaps with other high-use periods. Goat do not have a season, but are mostly hunted in the summer and fall. Wolf and wolverine have a longer season, extending into the colder winter months. Underlying the proposal airspace are the Delta CUA and the Clearwater Creek CUAs. These are designated by ADFG to restrict the use of motorized vehicles for hunting, including transportation of hunters, their gear, or their game for a particular time of year. It does not limit motorized access on the Richardson or Denali Highways. This provides opportunities for walk-in hunters without the competition from more-mobile hunters.

Trapping

Species that can be trapped within these GMUs include beaver, coyote, red fox, lynx, marten, mink, weasel, muskrat, river otter, squirrel, marmot, wolves, and wolverine. The seasonal restrictions for these species are provided on the ADFG website. In general, most trapping occurs from late fall through spring, coinciding with times when fur coats are their thickest.

Fishing

The headwaters of the Tanana, Susitna River, and Copper River watersheds underlie the Fox 3 MOA proposal airspace. Many of the lakes, streams, and tributaries of these major rivers provide excellent sport fishing and important sources of subsistence fish. Approximately 19 water bodies used for sport (i.e., recreational) fishing are located the project area. [Table 3-18](#) shows the intensity of use (determined by the number of days that fishing occurred) within the Tanana River, Upper Copper River, and Susitna River drainages in 2009 and 2010. Willow Creek is the most intensely used waterbody in the project area followed by Sheep Creek, Talkeetna River Drainage, and Lake Creek. The heaviest sport fishing use within the Tanana River, Upper Copper River, and Susitna River drainages occurred in the Delta Clearwater, Paxon Lake, and Willow Creek, respectively.

Lake Susitna and Lake Louise are well-known for arctic char fishing and attract not only Alaska residents but out-of-state and international travelers. Fishing is therefore important recreationally but also is closely tied to the local economy. Currently, 29 lakes in the Upper Copper and Upper Susitna Management Area are stocked with arctic grayling, rainbow trout, coho salmon, and arctic char. The upper Tanana River basin lies under the Fox 3 MOA. Fish species not commonly found in the lower Tanana River region, such as lake trout, are found in the high alpine lakes along the Denali Highway (ADFG 2011-3). Many of these lakes are only accessible by floatplane.

3.1.10.2 Impact Assessment Methodology

GENERAL METHODOLOGY

The assessment of impacts on land use, public access, and recreation considers whether changes resulting from implementing the proposal would displace a current use, change the suitability of a location for its current or planned uses, or impede the management of land use resources according to authorized plans.

There are no regulated standards for measuring land use impacts; however, the assessment considers factors such as:

- Degree of impact or change on the intrinsic qualities or uniqueness of the affected land and resource (either locally or nationally).
- Magnitude of the change from the current condition and the effect of the change on continuing its current use and identified purpose.

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- Relative abundance or scarcity of land with similar attributes, use, and affected resource.
- Frequency, timing, and duration of the effect (for example, temporary or permanent, continuous or intermittent, daily or infrequent) that would preclude use or diminish suitability and access.
- Importance of an affected land use resource to local residents and users.
- Sensitivity of an affected area or use based on its value for a designated purpose (e.g., public recreation area, state or national park, protected area, or natural resource productivity objective).
- Compatibility of the change with implementing applicable land management plans and controls.

Table 3-18. Sport Fishing Activity Within the Expanded Fox 3/New Paxon MOA Proposal Area

Water Body	Average Use ¹	Fish Species	Proposal Area ²				
			1	2	3	4	5
Tanana River							
Tangle Lakes Drainage above Wildhorse Creek	3,525	LT, GR, WF, BB		X		X	
Nenana River Drainage, excluding Brushkana Creek	1,426	SS, GR, NP, KS	X				
Fielding Lake	1,168	LT, GR				X	
Brushkana Creek	757	GR	X				
Fish Creek (Denali Highway)	368	None				X	
Upper Copper River							
Paxson Lake	1,191	LT, GR, WF, BB				X	
Crosswind Lake	1,028	RS, LT, GR, BB			X		
Summit Lake (near Paxson)	870	LT				X	
Susitna River							
Talkeetna River Drainage (excluding Clear Creek)	9,367	KS, SS, RS, PS, CS, DV, RT, BB, LT, GR	X	X			
Sheep Creek	8,145	KS, RS, PS, CS, DV, RT, GR, BB, SS			X		
Lake Louise	6,330	LT, GR, WF, BB, Other			X		
Susitna River	4,899	KS, SS, RS, PS, CS, DV, RT, GR, NP	X				
Kashwitna River	2,756	KS, RS, CS, RT, BB, RS			X		
Goose Creek	1,346	RT, GR, SS, RS, PS, CS	X				
Susitna Lake (upper Susitna drainage)	824	LT, GR, WF, BB	X				

¹ Averaged for 2009 and 2010.

² Proposal areas 1 through 5 shown in [Figure 3-11](#) legend

1 = Existing Fox 3 MOA

2 = Fox 3 MOA Expansion Area 1 (Alt A and E)

3 = Fox 3 MOA Expansion Area 2 (Alt A only)

4 = New Paxon MOA (Alt A and E)

5 = New Paxon MOA wedge (Alt E only)

Key: KS=king salmon; SS=coho salmon; CS=chum salmon; LT=lake trout; DV=Dolly Varden; RT=rainbow trout; GR=arctic grayling; WF=whitefish; SF=sheepfish; NP=northern pike; BB=burbot; RS=sockeye salmon; KS=Chinook salmon; PS=pink salmon.

Source: ADFG 2012-1

Most of these effects are measured qualitatively in terms of values implicit in plans; input from local land managers, users, and residents; perceptibility of change; and local or widespread dependence on the affected resource. Where possible, the analysis uses proportional measures (e.g., time of effect, extent of effect) to quantify the degree or magnitude of an impact. Qualitative assessment also uses scientific and historical data to predict positive or negative changes to land use, public access, and recreation. The following categories are used in assessing these impacts:

- None – No measurable impact is expected to occur.
- No adverse impacts – Some impact would occur and would result in a minor change in accessibility, or intrinsic suitability for land uses or recreation but would not change the uses of an affected area.
- Potential for adverse impact, but not significant – Impacts are expected to occur, would be noticeable, and/or would have a measurable effect on public access and recreation, such as reduction in access, alteration of recreational opportunities, or change in activity level, could modify intrinsic suitability for particular land uses or recreation (e.g., increase noise and overflight in areas supporting uses that benefit from quiet) but not change or displace a specific land uses. Potential impacts may require management actions or mitigations to avoid or reduce impacts
- Potential for significant adverse impacts – Impacts are highly probable and would result in substantial change in use, accessibility, or intrinsic suitability for current and planned land uses or recreation, and conflicts with special use management priorities for an affected area. Change or displacement of current land use may result.
- Beneficial – Impacts are expected to improve conditions for land use in affected areas, access, and recreation (for example, provide improved infrastructure for access to public recreation areas).

The first three qualitative impact categories (none, minor, and moderate) are considered insignificant in this analysis. The impact is considered significant when the impact affects a critical or highly valued area or use.

PROPOSAL-SPECIFIC METHODOLOGY

The following are the primary impacts of this proposal on land use, including public access and recreation:

- Effects of noise (subsonic and supersonic) from military overflights on underlying uses and activities
- Effects of countermeasures deployment on land uses and recreation
- Indirect effects of limited civilian air access (including use of private airfields) on land use and recreation

Land Status, Management, and Use

The methodology for evaluating the effects of aircraft-generated noise on land uses first identifies ownership and management of affected lands, defined public land uses, special areas, and sites with concentrated activities (for example, villages, industrial facilities) underlying the airspace “footprint” of each alternative, by airspace subunits. Each special area and use is assigned a noise sensitivity ranking of high, medium, or low based on factors described above (for example, mining operations would rank low for noise sensitivity, and wild and scenic rivers as high). Relevant changes in noise level (in DNL) and frequency of operations (as a percent) are provided. Based on these contributing factors, an overall impact category is assigned.

The assessment of noise effects on land use considers the compatibility thresholds established for DNL and CDNL presented in Section [3.1.2.2](#) and [Table 3-19](#). However, these levels frequently are not applicable to land uses in rural and remote settings and areas with qualities derived from quiet surroundings. Instead, perceptibility of anticipated changes in noise levels, frequency of noise exposure, timing of noise events, and noise sensitivity of affected areas and uses are considered. These factors apply to both average noise levels and sonic booms.

Table 3-19. Noise Compatibility Guidelines

Noise Zone	Noise limits (dB)			Noise Sensitive Guidelines
	Aviation ADNL	Impulsive CDNL	Small Arms PK 15(met) ¹	
LUPZ	60–65	57–62	N/A	Housing, schools, medical facilities normally acceptable
LUPZ I	<65	<62	<87	Housing, schools, medical facilities normally acceptable
LUPZ II ³	65–75	62–70	87–104	Housing, schools, medical facilities not acceptable
LUPZ III ³	>75	>70	>104	
Not categorized			>115 ^{2,3}	Noise sensitive land uses discouraged

¹ PK 15(met)=Single-event peak level exceeded by 15 percent of events.

² >115 dB PK 15(met) large caliber weapons.

³ Although local conditions regarding the need for housing may require noise-sensitive land uses in Noise Zone II, on or off post, this type of land use is strongly discouraged. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the noise-sensitive land use would not be met if development were prohibited in Noise Zone II.

Where the community determines that these uses must be allowed, measures to achieve an outdoor to indoor noise level reduction (NLR) of at least 25 dB to 30 dB in Noise Zone II, from small arms and aviation noise, should be incorporated into building codes and be in individual approvals. The NLR for communities subject to large caliber weapons and weapons system noise is lacking scientific studies to accomplish the recommended NLR. For this reason it is strongly discouraged that noise-sensitive land uses be allowed in Noise Zone II from large caliber weapons.

Normal permanent construction can be expected to provide a NLR of 20 dB, for aircraft and small arms, thus the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation, upgraded Sound Transmission Class (STC) ratings in windows and doors and closed windows year-round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.

NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, and design and use of berms and barriers, can help mitigate outdoor noise exposure NLR particularly from ground level aircraft sources. Barriers are generally not effective in noise reduction for large arms such as artillery and armor, large explosions, or from high-level aircraft sources.

Key: ADNL=A-weighted day-night average level; CDNL=C-weighted day-night average level; dB=decibel; LUPZ=land use planning zone; PK=peak.

Source: Army 2007 (Army Regulation 200-1).

[Table 3-20](#) shows the relation of percentage of persons annoyed to DNL and CDNL metrics.

Table 3-20. Relation Between Noise Level Metrics and Annoyance

dB DNL	dB CDNL	Average Percent Population Highly Annoyed
45	42	0.83
50	46	1.66
55	51	3.31
60	56	6.48
65	60	12.29

Key: CDNL=C-weighted day-night average level; DNL=day-night average sound level.

Source: Finegold et al. 1994; Stusnick et al. 1992; CHABA 1981.

The effects of the use of chaff and flares on land use considers accumulation of debris on underlying areas and the indirect effect of this debris on land use. The primary concern is the visual aspect of debris. The evaluation considers if the debris is noticeable and how this could change the visual character of an area, relative to its inherent visual resource value (visual sensitivity).

Public Access

Ground access and travel are not affected by this proposal. Indirect effects of changes in civilian air access (reported in Section [3.1.1.3](#)) are defined as changes in spatial and temporal availability to specific areas, and in associated uses and activities. The resulting effects on owner, land managers, and land users (particularly for productive uses) are evaluated using the categories defined above.

Limited air access can affect land use and recreation in remote areas and small communities in Alaska that have no surface linkage to major population centers. The safety and socioeconomic impacts resulting from lack of air access are discussed under those respective resource topics in this EIS. The assessment considers what areas would be affected (and to what degree) in terms of loss of productive use, reasonable access, and recreational enjoyment due to projected restrictions on air access.

Recreation

The evaluation of impacts on recreation uses a similar approach as described above for land use and public access. The analysis considers the expected effect of noise on the qualities of recreational areas and user experience based on the sensitivity of the area or use, and on the spectrum of available recreational opportunity. It also considers how changes in public access would affect the spatial and temporal availability of areas used for diverse recreational purposes.

3.1.10.3 Environmental Consequences

The primary source for impact from this proposal is noise associated with military aircraft using the modified Fox 3 MOA or new Paxon MOA. [Table 3-21](#) summarizes the current and projected noise levels that would affect areas underlying these airspaces. A secondary indirect impact is reduced air access for multiple uses resulting from establishing low-altitude MOA airspace.

Effects of Subsonic Noise on Land Use, Special Use Areas, and Recreation. The effects of noise on people include sleep disturbance, interference with speech and communicating, and a variety of factors that affect health and social and economic functions. These intrusions contribute to annoyance. Studies have correlated average noise levels with community annoyance as a percentage of the affected population (see 14 CFR part 150, Table 1; FAA Order 1050.1E, App. A, p. A-15) (FAA 2006). Using this information, several agencies adopted guidelines with 65 dB DNL as a criterion for compatibility with residential land uses. During public scoping, some commenters noted that more sporadic noise exposure may cause greater annoyance due to the unpredictability of the overflights.

Annoyance is a common response to noise. An individual's response to noise is impossible to predict accurately and depends on several acoustic and nonacoustic factors, including but not limited to how the individual feels about the noise source and the activity the person is engaged in at the time the noise occurs (Newman and Beattie 1985). Extensive social surveys have found that the percentage of exposed populations that become "highly annoyed" after being exposed to a particular time-averaged noise level is predictable. This relationship has been studied for both the A-weighted DNL metric used to describe subsonic aircraft noise levels and CDNL used to describe impulsive noise events such as sonic booms (Schultz 1978; Finegold et al. 1994; Stusnick et al. 1992; CHABA 1981). There has been some investigation to determine if dose/response data on annoyance developed in urban contexts are generally similar in rural environments (U.S. Forest Service [USFS] 1992). The majority of these studies have been done in conjunction with sightseeing overflights of national parks. A low ambient noise combined with a short, high noise could heighten the reaction of individuals to noise. A more recent study undertaken by the National Park Service interviewed users of selected areas underlying Alaskan MOAs. The primary conclusions derived from this study are: (1) effects of flying exercises on user experiences did not differ from military training; (2) encounters with military aircraft were minimal and negative psychological impacts infrequent; (3) areas with higher use (for recreation and residing) and exposure to three or more events per day reported higher levels of negative response (ranging between 23 and 36 percent);

(4) expectations of interviewees did not consistently align with reported effects; and (5) residential communities expressed desire for more consistent communication with the Air Force regarding planned operations (NPS 2006).

**Table 3-21. Noise Parameters Affecting Land Use and Recreation –
Expanded Fox 3 MOA and New Paxon MOA Proposal**

Location/Airspace	Current	Proposed	
		Alternative A	Alternative E
		Minimum Altitude 500 feet AGL	Minimum Altitude 500 feet AGL
Subsonic Noise: Day-Night Average Noise Level (L_{dnmr} dB)			
Fox 3 MOA/ATCAA	39	49	50
Fox 3 Expansion Area	37	49	50
Paxon MOA/ATCAA	37	54	54
Supersonic Noise: C-Weighted Day-Night Average Noise Level (CDNL)			
Fox 3 MOA/ATCAA	61	61	61
Fox 3 Expansion Area	61	61	61
Paxon MOA/ATCAA	61	61	61
Average Daily Supersonic Events (events/day)			
Fox 3 MOA/ATCAA	4.6	5.2	5.2
Fox 3 Expansion Area	4.6	5.2	5.2
Paxon MOA/ATCAA	4.6	5.2	5.2
Single-event Level (dB) F-15 at Minimum Permitted Altitude			
Fox 3 MOA/ATCAA	95	116	116
Fox 3 Expansion Area	N/A	116	116
Paxon MOA/ATCAA	86	116	116

Notes:

¹ Under current conditions, Paxon MOA does not exist; it would be created under Alternatives A and E.

² CDNL values are rounded to the nearest whole number; calculated CDNL increases would be less than 1 dB.

Key: AGL=above ground level; ATCAA= Air Traffic Control Assigned Airspace; CDNL=C-weighted day-night average level; dB=decibel; L_{dnmr} =onset rate-adjusted monthly day-night average sound level; MOA=Military Operating Area; N/A = not applicable.

The amount of change in noise level is another way to evaluate impact of noise more broadly over a large area. While human perception of, and reaction to, noise can vary, in general, most people can detect a 3-dB change while few persons can discern a 1- or 2-dB change. Even below 65 dB DNL, a 3-dB change can be perceived as a degradation of the noise environment (FICON 1992).

Quiet and naturalness is an intrinsic part of some recreational experiences. BLM, the USFWS, the USFS, the National Park Service, and ADNR are mandated to manage wilderness areas, recreational areas, and other specially managed lands areas for their wilderness and/or recreational qualities. This includes maintaining the natural setting and allowing minimal human disturbance and development. Management goals for these special use areas could be negatively affected by increased noise and disturbance associated with military overflights. The quality of recreation experiences in these areas could also be affected, depending upon the type of recreation and remoteness of the area.

Noise compatibility considerations may differ for various types of special use areas. Recreational areas, for example, vary in the degree to which quiet is desirable and necessary for a high-quality recreation experience. How much of an area is devoted to developed and undeveloped recreation and the

remoteness of the area are also factors. Managers of wildlife areas and preserves frequently consider sensitivity of wildlife to noise, such as startle effects due to sudden changes in noise.

Effects of Noise from Low-Flying, High-Speed Aircraft on Land Use and Recreation. Low-level overflights, like other sudden unexpected sounds, can startle and disturb sleep. Similar effects on recreational experiences could occur as low-level aircraft operations are experienced. Startle effects are experienced when a loud noise occurs in a context where not expected and when there is no visible or audible warning. Low-flying military aircraft can startle humans and animals. Activities requiring a high degree of focus and with inherent safety risks (such as rock climbing and other extreme sports) may be incompatible with startling noise. Unpredictability of flight operations in MOAs may also “increase people’s annoyance because they do not know when the overflights will occur, making affected persons even more prone to “startle effects” (USFS 1992). Startle effects to animals can affect ranching operations. For example, cattle could stampede if startled during specific ranching operations such as calf weaning and branding.

Effects of Impulsive and Supersonic Noise on Land Use, Special Use Areas, and Recreation. The primary impact of sonic booms, similar to low-level overflight, on human populations would be annoyance. Few studies help predict annoyance or land use effects from sonic booms. Sonic boom noise may combine with noise exposure from other sources (including subsonic aircraft noise) to cause annoyance. Humans tend to respond to the high frequency sounds in a sonic boom, while structures tend to respond to the low frequencies, which cause shaking. Shaking can have a visible and audible component that can be disturbing to persons and can cause physical damage (such as broken household items). Most community annoyance is experienced within the primary boom envelope from short-duration, high-overpressure booms. Guidelines correlate C-weighted measurements of impulsive noise (CDNL) with community annoyance and result in equivalents to A-weighted standards for compatibility. A 65 dB DNL equates to about 60 dB CDNL as a guideline for residential compatibility (see [Table 3-21](#)). The potential for sonic booms to destabilize snow and cause an avalanche was raised as a concern during scoping. Avalanches are a risk to skiers and other outdoor recreation in high mountain areas. Studies and reports have generally concluded that it is very unlikely that a sonic boom would trigger an avalanche unless the area is already critically unstable. A study performed in the Swiss Alps concluded that sonic boom is a poor means to produce avalanche (Perroud and Lecomte 1986).

Effects of Chaff and Flares on Underlying Land Use. Reports and studies indicate that military uses of chaff and flares do not cause noticeable changes under most situations (Air Force 1997-2). Therefore, the analysis focuses on identifying extreme or unusual circumstances that may warrant proactive consideration. The indirect effect of fires caused by flares on land use is addressed under Ground Safety (as a public safety concern). The effect of fires caused by flares to affect vegetation and wildlife is addressed under Biological Resources.

Effects of Reduced Air Access on Underlying Uses. While civilian pilots can technically operate in MOAs using VFR when active, many pilots choose not to do so because of higher risk when aircraft with vastly different performance capabilities are using the airspace. It is unknown how many pilots would avoid using the MOAs, but concern expressed by the public and land management agencies during scoping, suggest that would be likely for a high percentage of commercial and general aviation pilots. This would impact communities and commercial operations reliant on air access (such as mining and energy development and extraction), and persons who fly into remote areas for outdoor recreation, hunting and fishing (both personal and subsistence), and ecotourism.

3.1.10.3.1 Alternative A

During scoping, several participants explained that they consider noise qualities important to that use of the land. Of particular concern was noise impact (including subsonic and supersonic aircraft noise) to locations listed in [Table 3-14](#).

LAND STATUS, MANAGEMENT, AND USE

Most of the land underlying the proposal area is owned and managed either by Federal or State agencies. This proposal would have no impact on land status or ownership.

Impacts on Land Management and Use

BLM, USFWS, ADNR, and ADFG have management responsibilities for public lands underlying the proposed airspace. The primary impact resulting from this proposal is the effect of noise from military aircraft on underlying areas, particularly those that sensitive to noise because of their use or inherent values of quietness. Areas with the most sensitivity to noise are those that are managed for their special resource values, and generally serve a recreational or preservation function. [Table 3-21](#) provides current and projected average subsonic and supersonic noise levels under Alternative A and gives the current and projected number of supersonic noise-generating events.

BLM, USFWS, ADNR, and ADFG will continue to manage lands to meet multiple objectives. This will include approving new activities, leases and permits that require air access or construction of major infrastructure. The Air Force users would need to continue coordination since some of these could affect flight operations. For example, potential future activities such as new wind turbine sites, communication towers, and other tall objects could conflict with lowering the floor of the Fox 3 MOA 3 to 500 feet AGL. The proposed Fox 3 MOA modifications and new Paxon MOA would not change the use of underlying public or private land. Any existing or new tall structures, such as wind energy generators or communication towers, would be charted by FAA on sectional aeronautical charts and avoided by aircraft. These guidelines would continue to apply and would not be altered by this proposal. Larger communities would have a 1,000-foot vertical avoidance above the highest obstruction and a radius of 2,000 feet (14 CFR Part 91.119). When considering new flight restrictions and avoidances, coordination between military users and management agencies would assist in assigning priority and suitable restrictions to protect resource management responsibilities and land uses.

Indirect effects on land use from restricted air access are discussed below. Some locations are reliant on air access and associated uses may experience inconvenience or disruption by limited access from establishing lower-altitude SUA (in all life threatening emergencies, access would take precedent over military missions).

Noise Effects on Land Use

Effects on Subsonic Noise. Noise levels in the underlying areas would increase substantially by about 17 dB under the new Paxon MOA and by about 10 dB under existing Fox 3 and the Fox 3 expansion area. However, the highest projected level under the new Paxon MOA, 54 dB L_{dnmr} , is below levels of concern established by EPA for any land use. Overall, the relative change is high, and in quiet settings, these increases would be highly noticeable and cause potentially significant impacts on communities underlying the Fox 3 MOA and expansion area and new Paxon MOA.

Effects of Low-Level Overflight. The lower floor altitude of a MOA has a great influence on the decibel level of single-event overflights experienced from the ground. Under this proposal, the noise associated with low-level overflights could increase to as much as 116 dB for an F-22 flying at 500 feet AGL. This degree of noise would likely annoy or startle persons overflown. However, aircraft would operate in the lowest altitude strata only a small portion of the time, and each sortie would only overfly a small portion of the underlying land. The potential for a person to experience a low-level overflight while recreating would remain relatively low. However, as low-level overflights do not currently occur within the proposal area, the associated increase in noise would be a new and adverse but less than significant impact on uses and for persons in natural, quiet settings. It is not likely to change land use or dramatically alter how and where persons partake of activities (mostly recreational). Mitigations within existing military training airspace do not allow MFEs during several months of the year to lessen impacts. Most

noise-sensitive locations are avoided by placing a higher altitude limitation over these areas. In addition, Flight Avoidance Areas are designated over some of the special use areas, as described in Appendix I, *Land Use, Public Access, and Recreation*. Existing measures to mitigate adverse noise impacts associated with low-level overflight would continue under this proposal in the existing Fox 3 MOA. Locations identified in [Table 3-14](#) without an existing avoidance procedure may experience adverse noise effects and warrant consideration as a new avoidance location.

Effects of Supersonic Noise Events. Overall, changes to quiet settings could constitute an effect on valued natural and pristine areas in the region, but would not be expected to change the land use of the area. The frequency of sonic booms would increase by less than one per day, for 4.6 to 5.2 on average ([Table 3-21](#)) but booms could be annoying to individuals who experience a startling event. A less than 1-dB increase in CDNL ([Table 3-21](#)) would likely not be perceptible to most persons who use the area where sonic booms already occur. This change would be noticeable in areas where sonic booms are not currently occurring at the south end of the proposed Fox 3 expansion area. Existing flight avoidance procedures for reducing noise impacts would apply for this airspace and continue to provide some noise reduction for sensitive locations. Existing altitude restrictions on supersonic operations should be applied to the new SUA. Overall, supersonic noise impacts would be as follows:

Fox 3 MOA. The Fox 3 MOA would see an increase of 10 dB in subsonic noise from 39 to 49 dB L_{dnmr} . This is a noticeable increase but below levels of concern for most land uses and health and safety. The loudest single-event level would increase substantially from 95 to 116 dB. Underlying areas that are sensitive to noise (including communities, special use areas, and locations of interest), would experience moderate to substantial change in noise conditions that could have an adverse effect on intrinsic suitability for their current uses in the absence of noise avoidance restrictions. This includes inhabited areas and special use areas underlying Fox 3 MOA as listed in [Figure 3-12](#) (Gulkana National Wild River and Nelchina PUA), locations in [Table 3-14](#), and additional locations listed in Section [3.1.10.1](#), Recreation (provided by ADFG in comments on the DEIS). A 13 percent increase in operation and lowering the floor of the MOA would increase the incidence of overflights for persons residing, recreating, or using the natural resources of the underlying area. These locations should be considered for flight avoidance, with lateral standoff/altitude/or seasonal parameters. Alternative A would result in little change in supersonic noise under this airspace.

Fox 3 Expansion Area. The Fox 3 MOA expansion area currently does not experience military overflight except for some portions underlying the high-altitude Paxon ATCAA. Current noise levels in the expansion area are about 37 dB. Noise levels due to subsonic aircraft operations would increase to about 49 dB and have similar effect to underlying areas and noise sensitive locations as for the Fox 3 MOA. Similar to the Fox 3 MOA, some areas underlying the Fox 3 Expansion Area are subject to flight restrictions. The loudest single-event level would increase from current civilian use levels to 116 dB from F-22 aircraft. Important affected locations include several small communities and lakes (among these, Summit, Tangle, Louise, Clarence, and Meiers Lakes) and Gulkana and Delta Wild and Scenic Rivers. The predicted change in noise exposure at these locations would cause potentially significant impacts. The highest priority should be given to the National Wild and Scenic Rivers, special use areas, and locations with clusterings of inhabitants, such as Lake Louise and Tangle Lakes areas. The Fox 3 expansion area would experience an imperceptible increase in CDNL from supersonic events (less than 1 dB CDNL) and an increase of 13 percent in frequency. This change would not be noticeable to most persons who are familiar with the area and the current frequency of booms and would not change land uses. The Air Force would expand the flight avoidance of the Gulkana and Delta National Wild and Scenic Rivers under the new MOAs with a 5-mile buffer on either side and minimum floor of 5,000 feet MSL between May 15 and September 30 every year, providing some reduction in noise in these sensitive areas during peak seasons, so that the impact of overflight may cause adverse but likely not significant impacts to activities in these special areas.

New Paxon MOA. Portions of the underlying area have experienced high altitude military overflight. The proposed operations would greatly change the noise environment within the new Paxon MOA (from 37 dB to 54 dB L_{dnmr}). This is a substantial increase even though levels would remain below thresholds used as compatibility standards for most land uses in developed settings. The loudest single-event level would increase from 86 to 116 dB. The change in noise exposures for portions of Gulkana, Delta Wild, and Scenic Rivers, the Fielding Lake State Recreation Area, and locations of interest under the new Paxon MOA (listed in [Table 3-14](#)) would be a significant impact considering their protected status and/or degree of value to the public. Existing flight avoidance locations should continue and be evaluated for additional restriction or expansion. Of note are the Tangle Lakes Archaeological District, Fielding Lake Recreation Area, and important hunting locations along the Gakona and Gulkana Rivers. Sensitive locations should also be considered for flight avoidance, with lateral standoff/altitude/or seasonal parameters. The highest priority should be given to the National Wild and Scenic Rivers, special use areas, and locations with clusterings of inhabitants. There would be no appreciable change in supersonic noise under the new Paxon MOA. The benefits of expanding the flight avoidance area over the wild and scenic rivers under the new Paxon MOA (see Section [3.1.10.4](#)), would reduce noise impacts on these valuable resources, and lessen the intrusion for persons using these areas for multiple activities.

The Air Force also intends to expand or change flight avoidance procedures for areas with concentrated activity (such as communities, mining operations) to ensure that these areas are accessible and in some cases, to reduce noise exposure. These changes are coordinated with other agencies on an intermittent basis so that they reflect most current conditions on the ground and provide ongoing benefits to selected underlying areas.

Effects of Chaff and Flare Use on Land Use

Minimal impact on land use from chaff and flare use is expected. Fox 3 MOA and Paxon ATCAA have historically supported chaff and flare use with little or no impact on land use, recreation, or natural settings. Under this proposal, the same quantities of chaff and flares would be used but over a wider area. This would have minimal effect on land use and possibly a positive effect for the Fox 3 MOA area. The potential for fires from flares can affect vegetation and wildlife, and fires can indirectly change visual qualities of an area for many years. The risk of flare-caused fire, compared to other sources, is extremely low. Dispersed over an extremely large area, the likelihood of noticing residual materials deposited on the ground, such as small plastic, felt end caps, or wrapping material, is very low. Residual materials, if found and identified in a pristine setting, could annoy some persons, but would not change the overall visual qualities of an area.

Effects of Dry Targets on Land Use

Dry targets would occupy temporary sites on land underlying the Fox 3 expansion area and new Paxon MOA. They involve parking a vehicle or trailer on the side of a road, campground, or other accessible paved or graveled surface. Dry targets send and receive signals to act as a threat to training aircrews. The frequencies used are nonhazardous. The locations of these sites are not known, but would be very widely separated within the landscape. Future agreements with land owners (Federal, State, or private) would include any terms or particular provisions for the duration and precise location for the parked equipment (such as the distance between the vehicle and roadway, particular campsite, screening, or signage). These sites, which are already in use without negative effects, would not change any land use and would be only implemented with willing owners and in cooperation with land managers. No impact on land use or recreation would result from deploying dry targets.

PUBLIC ACCESS

Ground access and travel is not affected by this proposal. Indirect effects of changes in civilian air access (reported in Section [3.1.1.2](#)) could affect access to specific communities and areas and associated uses and activities.

Indirect Effects of Restricted Access on Land Use

The expansion of the Fox 3 MOAs and the establishment of the Paxon MOA would not restrict ground access to areas underlying Fox 3 MOA, the Fox 3 MOA expansion area, or the new Paxon MOA. The public and agency land management personnel would have the same access and availability to all areas as under current conditions.

The new and expanded airspace, however, may result in restricted access by aircraft to areas or landing fields below or in the vicinity of the airspace. Aircraft are often used as a means to access remote areas for multiple purposes, including recreation, habitation, resource extraction (mining and forestry), and resource management. In addition, many Alaskan residents in rural areas use light aircraft as residents of the “lower 48” use cars. General aviation aircraft are frequently parked at rural homes, and straight highways serve as runways. Some portion of general aviation pilots may choose not to fly in MOA airspace while military aircraft are operating, choosing to deviate around the MOA or postpone their activities.

Expanding the airspace with much lower altitudes would require increased vigilance by both military and civilian pilots to maintain continued awareness of each other’s presence while sharing this MOA airspace. The Air Force is sensitive to that concern and would limit activation of the low sector to the mission needs that require the use of those lower altitudes. The Air Force would extend the use of the SUAIS and other communications means to provide information on when airspace is active. As discussed in Section [3.1.1.1](#), SUAIS capabilities and the manner in which this service is provided is outlined in an FAA agreement and Air Force procedures, addressed as a standing agenda item on the ACMAC meetings, and communicated through the SUAIS Pamphlet and other means. Any changes to the SUAIS capabilities are appropriately addressed and communicated through those same venues. It would be the responsibility of civil pilots to check on the status of MOAs prior to and during a general aviation flight in order to learn if the airspace is active. Public comments highlighted that the SUAIS system does not provide reliable coverage in the areas underlying the Fox 3/Paxon MOA area. The Air Force would identify any new radar sites for new MOAs in an updated Letter of Agreement with the FAA, to reduce the potential for gaps in the SUAIS coverage.

When the MOAs are inactive, IFR traffic would be permitted. Also, when IFR conditions prevail, access to IFR-capable airfields and IFR routes to remote locations beyond the airspace may be interrupted, delaying travel to some locations. To the extent that remote inhabited areas may rely on air access, this could potentially cause inconvenience or a safety concerns, primarily when visibility is low.

The low-altitude use of MOAs are not expected to be scheduled and activated on a daily basis. Therefore, air access for multiple uses by aircraft (productive uses, management and survey activities, recreation, hunting and fishing, and ecotourism) would be available to those civil pilots willing to fly VFR through an active MOA. However, for those pilots unwilling to fly VFR, or if weather conditions do not permit VFR, additional wait times or delays may be expected until the MOAs are released to IFR traffic. These delays are not expected to occur daily, particularly for the low-altitude MOAs. A delay in gaining access to work sites or recreational areas could adversely affect specific land users, depending on the length of the delay. This would include commercial air operators who support and supply remote mining areas, mostly in the Nelchina PUA and underlying the Fox 3 MOA. Commercial guides, trappers, and subsistence users are also reliant on air access to some locations for their livelihoods. Specific areas include the Willow Creek, Valdez Creek, and Delta River placer districts. Overall, access would remain relatively high for the public, with the ability to provide real-time information on availability and an average use of 33 to 47 sorties per day, and overall impacts are less than significant.

Land management agencies are particularly concerned with having access to lower-altitude airspace to conduct game surveys. The timeframes for these surveys are very precise and vary by species. They also vary each year depending on conditions that affect game behavior from year to year. Mostly these occur

in late summer/early fall and before first snow (see Section [3.1.10.1](#) for timing). Operations for a MFE could limit air access for surveys so that they were unable to take place. This would constitute a potentially significant impact on time-sensitive management activities. To overcome this impact would require close coordination and schedule planning between military operators and State and Federal land use managers to allow for adequate access low altitude airspace (below 1,500 feet AGL) to perform critical tasks. Similarly, hunters and other discretionary access for recreation may choose to avoid flying in active MOAs. Based on public concerns expressed in scoping, this could cause a significant impact on access for recreation and associated livelihoods.

A total of six chartered airports are located under the proposed Fox 3 MOA ([Table 3-16](#)). Two airports (Road Commission NR 1 Airport and Clearwater Airport) are located under the existing Fox 3 MOA; three airports (Crosswind Lake Airport, Lake Louise Airport, and Lake Louise Seaplane Base) are located under the Fox 3 Expansion Area; and one airport (Paxson Airport) is located under the new Paxson MOA. [Table 3-16](#) indicates the communities and special use areas that are serviced by these airports. Airports within the existing Fox 3 MOA are presently subject to routine military training activities, but not at low altitudes. To reduce the impact on local air access, a proposed VFR air corridor along Richardson Highway would maintain access below 4,500 feet MSL providing access for communities along the highway.

Per FAA regulations, public airports require an avoidance area of 3-NM radius and 1,500 feet AGL, while private airfields require an avoidance area of 1-NM radius and 1,000 feet AGL. These avoidance areas allow the airports and airfields to accommodate incoming and outgoing aircraft while the MOA airspace is active. However, as described above, many civil pilots will not take off into a MOA that is actively in use. This could disrupt and inconvenience many residents dependent on these amenities, as others are dependent on automobiles. The larger communities with potentially adverse impacts include Lake Louise and Paxson. Advanced public notification can lessen this disruption by allowing people to plan around military schedules.

A proposed mitigation to expand the VFR corridor over the Richardson Highway between Delta Junction and Glennallen (mostly under the new Paxson MOA) would allow greater access for civilian pilots through this area. This would provide benefit for the communities along the highway and many trailheads along the highway corridor, although the 500-foot floor would still impose some constraint on access into more remote areas under the MOAs.

RECREATION

Evaluation of recreational resources considers whether projected changes would preclude, displace, or alter the suitability of an area or facility for ongoing or planned recreational uses. Ground access and travel is not affected by this proposal. Therefore, no direct spatial or temporal impacts on availability of recreational opportunities would occur under this alternative. Indirect effects of changes in civilian air access (reported in Section [3.1.1.3](#)) would affect spatial and temporal availability to specific areas, and associated uses and activities.

Quietness and naturalness is an intrinsic part of some recreational experiences. Reactions to noise in a recreational setting vary. A study by the USFS found that visitors to wilderness areas did not generally notice high-altitude aircraft noise intrusions, although startle effects from low-flying, high-speed aircraft were noticed and reported as annoying by some visitors (USFS 1992). In addition, a study by the National Park Service on the effects of military overflights on human users beneath selected Alaska MOAs found that the overall proportion of recreational users negatively impacted by military aircraft in MOAs was low (NPS 2006). The qualities of military overflights that were most consistently related to impact were number of sonic booms heard, loudness of the overflight, and the number of military overflights encountered (NPS 2006). For most users, the reported impacts were not substantial enough to

alter their choices about where to recreate. In both studies, visitors varied on whether aircraft overflights were a positive or detrimental factor to their outdoor experience.

During scoping, specific recreational uses, including hunting, fishing, mountain climbing, backpacking, camping, and berry picking, were noted as noise-sensitive.

Subsonic Noise Impacts on Recreation

Special use areas and locations of interest underlying military training airspace are listed in [Figure 3-12](#) and [Table 3-14](#), respectively. In addition, BLM and State-managed land is valued for and frequently used for hunting. [Table 3-17](#) indicates key recreational locations based on usage.

During routine training, aircraft activities in any specific area would occur in low numbers and would be generally dispersed over broad geographic areas. Because routine training operations in the MOA would follow random flight paths that vary horizontally and vertically on a daily basis, regular, repeated, or continuous exposure to aircraft-generated noise would be unlikely. Single events would increase from levels of 86 to 95 dB (and lower in some areas absent of military overflights) to as high as 116 dB. These events could be startling and disturb some activities that require a high degree of focus. In general, these events would be infrequent (i.e., low numbers of aircraft). For some persons, even if noticeable, this may not cause annoyance or change overall recreational enjoyment. The military flight training would occur in the expanded MOA Monday through Friday, from 8:00 a.m. to 6:00 p.m. The Fox MOAs are also available on weekends between 7:00 a.m. and 10:00 p.m. Given these characteristics, routine training activities alone would not be expected to result in permanent alteration of an area's recreation opportunity and would, therefore, be a minor impact to recreation.

The greatest increase in subsonic noise levels from existing conditions would occur in airspace overlying the proposed Fox 3 expansion MOA and the Paxon MOA, because these areas would be exposed to regular low-level military training and MFEs for the first time. Special use areas under the proposed Fox 3 expansion MOA affected by this increase in noise levels include: Gulkana National Wild River, Delta National Wild, and Scenic Recreational River, Lake Louise State Recreation Area, Nelchina PUA, and Matanuska Valley Moose Range. Special use areas within the Paxon MOA that would be affected include Gulkana National Wild River, Delta National Wild and Scenic Recreational River, and Fielding Lake State Recreation Area, which would be exposed to regular low-level military training and MFEs for the first time.

Impacts on recreational use in popular locations would result from intermittent, intensive, and repetitive aircraft overflights during MFEs, particularly during the most critical recreation period between approximately June 15 and September 15. This would be most evident at high-use locations including: Brushkana Creek campground, Tangle Lakes campground, Paxon campground, Clearwater Wayside, One Mile Creek/Wolverine Mountain, Tangle Lakes trail, Gulkana River Raft trail, Castner Glacier trail, Sourdough campground, Matanuska Valley Moose Range, Lake Louise State Recreation Area, and trails and access points along Denali and Richardson Highway. In general, recreation use levels are lower during the remainder of the year, and MFEs would be expected to result in minor impacts during this period. The Air Force can provide advance schedules for MFEs, and the public would have access to information about MOA activation during scheduled training through the SUAIS and other available communications. Being able to plan recreational activities to avoid training times would minimize impacts to some degree. Considering this, these impacts are considered potentially adverse but less than significant. Avoiding MFEs in the peak seasonal times and/or flying at higher altitudes during these periods could reduce impacts on recreation and hunting to less than significant.

Effects of Low-Level Flight and Sonic Booms

Reactions vary depending upon individual expectations and the context in which aircraft-caused noise occurs. These incidences are not likely to be persistent and would have temporary impacts on any given experience.

Under this alternative the number of low-level overflights in areas underlying the MOA would increase. Recreational activities such as off-road recreational vehicle (ORRV) use, horseback riding, fishing, hunting, hiking, and climbing typically occur in remote landscapes where the primary noise source is from recreational activities. The suddenness and unpredictability of low-level overflights and sonic booms during MFEs may result in annoyance and could lessen a recreational experience for some persons. These incidences are not likely to be persistent and are not expected to change visitor habits or recreational uses overall. For example, if a startling event occurred, a hunter would likely be annoyed. The effect of these infrequent noise sources is not expected to change the behavior of game animals such that hunting resources would be impacted. Thus, low-level flight and sonic booms would have adverse but not significant impacts on any given recreational experience. The Air Force would provide advance schedules of training missions in the MOA and the public would have access to information about low-level MOA activation through the SUAIS, NOTAMs, and other communications, as appropriate. Communication of MFE schedules well in advance could help reduce or avoid impacts on recreation from MFEs and sonic booms during MFEs.

There are numerous mitigations measures associated with airspace and noise during aircraft operations that could be implemented to reduce indirect impacts on recreation impacts due to aircraft noise and air access by the public. These BMPs are listed in Section [3.1.1.4](#) (Airspace) and Section [3.1.2.4](#) (Noise), respectively.

The Air Force would expand the flight avoidance for the Delta and Gulkana National Wild and Scenic Rivers to mitigate and protect these valuable areas. Similarly, proposed avoidance of areas with concentrated activity could benefit some heavily used recreational areas, by reducing subsonic noise and the potential for low-level overflight.

Effects of Restricted Air Access on Recreation

Indirect effects of changes in civilian air access (reported in Section [3.1.1.2](#)) would affect spatial and temporal availability to specific areas, and associated recreational sites and trails. The affected recreational sites and trails are listed in [Table 3-17](#). The more heavily used locations include Brushkana Creek Camp Ground, Castner Glacier Trail, Sourdough Campground, Paxson Lake Campground, Tangle Lakes Campground. These areas are heavily used during the summer months and during hunting seasons (between July and December).

3.1.10.3.2 Alternative E (Preferred Alternative)

Alternative E would have a similar, but smaller configuration for the Fox 3 expansion area than Alternative A. The configuration for the new Paxson MOA would be the same as Alternative A. Therefore, impacts on land use and recreation within the Fox 3 MOA expansion area with Alternative E would be similar to those discussed for Alternative A (without the impacts on locations on the south part of the MOA) and those for the new Paxson MOA would be the same as what was described for Alternative A. Other impacts on land use and recreation would generally be the same as described for Alternative A.

Fox 3 MOA. Sorties, average subsonic and single-event noise levels, and supersonic events would be similar to Alternative A at about 50 dB L_{dnmr} . Impacts on land use, access, and recreation in areas underlying the Fox 3 MOA would be similar to those described for Alternative A.

Fox 3 Expansion Area. Sorties, average subsonic and single-event noise levels, and supersonic events would be essentially the same as under Alternative A. Underlying areas would experience similar noise effects (50 dB L_{dnmr}) as described for Alternative A, only in a smaller area. This would result in no change in noise levels from the baseline in and around the Lake Louise area, and Crosswinds Lakes, which would lie outside the area of overflight. Similarly a smaller portion of the Nelchina PUA would be affected by low-altitude operations. Under this alternative, the Matanuska Valley Moose Range, Willow Creek placer district (including Bush, Willow, Jacko, Red, and Tyone Creeks) would be outside the low MOA boundary and, therefore, not affected by training operations.

Paxon MOA/ATCAA. Sorties, average subsonic and single-event noise levels, and supersonic events would be essentially the same as under Alternative A. MFE operations would cause essentially the same effects as described for Alternative A. This alternative allows for routine training in addition to MFE operations. These operations occur at higher altitudes and would have relatively little noise effect on underlying areas. These operations would not cause the startle effects of low flying aircraft, although frequent users of the underlying areas would likely notice military aircraft overhead. Dispersed and high altitude overflights would have minimal effect on land uses and recreation.

Potential effects on air access would be similar to Alternative A.

3.1.10.3.3 No Action Alternative

There would be no changes to the current Fox 3 MOA configuration and altitudes or proposed addition of the Paxon MOA under the No Action Alternative. Therefore, no additional impacts on land use, public access, and recreation would occur and they would remain as under current existing conditions.

3.1.10.4 Mitigations

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. The following mitigations are proposed to reduce these impacts.

- Land Use – Access
 - **Special Use Airspace Information System.** Continue SUAIS in all areas where radio coverage exists; this includes a majority of the area beneath the proposed Fox 3 and Paxon MOAs. The SUAIS Letter of Agreement with the FAA will be updated to include current radio sites and any new MOAs to be covered by the system. The effectiveness of this mitigation in maintaining a safe, usable airspace can be seen in today's northern MOAs, which have minimum altitudes even lower than proposed here. The Air Force safely shares large expanses of airspace with civilian aviation utilizing the communication network known as SUAIS. Proposed new, low MOAs already have large areas of SUAIS coverage that would enable safe, simultaneous use of these new airspaces by civil and military aircraft.
- Land Use – Management, Recreation
 - **National Wild and Scenic Rivers Protection.** For the period of May 15 to September 30, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-NM buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake).
 - **Concentrated Activity Areas.** Comply with flight avoidance areas established by the 11th AF Airspace and Range Team and listed in the 11th AF Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th AF

Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist).

- Land Use – Management, Access, Recreation
 - **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxson Fish Hatchery from the higher flying military aircraft.

3.1.11 Infrastructure and Transportation (No Analysis Needed)

The ROI for the Fox 3 and Paxon MOAs does not intersect with ground-based transportation and utilities resources. As a result, no impacts on this resource are expected. For analysis of private and commercial aircraft use, see Section 3.1.1, Airspace Management and Use. Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for a general discussion of infrastructure and transportation for this proposed action. The proposed action involves minimal to no disturbance of the land surface and no significant increase in population; therefore, impacts of this proposed action on infrastructure and transportation assets within the study area are expected to be not beneficial or adverse.

3.1.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.1.12.1 Affected Environment

The proposed Fox 3 MOA and Paxon MOA expansion covers portions of two boroughs and two census areas, including the Matanuska-Susitna Borough, the Denali Borough, the Southeast Fairbanks Census Area, and the Valdez-Cordova Census Area. Therefore, the ROI for the Fox 3 MOA expansion and new Paxon MOA proposed action is defined as these two boroughs and two census areas.

POPULATION

The population in the ROI totaled 107,486 persons in 2010 (USCB 2010-1). The Denali Borough, located in the Alaska Interior Region, had the smallest population of the four areas in the ROI with 1,826 persons (1.7 percent of the total ROI population) (USCB 2010-1). There are four communities in the Denali Borough: Anderson, Clear, Cantwell, and Healy. Healy is the largest community; the Borough Seat has approximately 1,002 permanent residents (Denali Borough 2012). Ferry and a number of smaller settlements are located in the Denali Borough. The majority of the population resides along a 70-mile stretch of the George Parks Highway (ALARI 2011-1).

In 2010, the Matanuska-Susitna Borough had the largest population in the ROI, with 88,995 persons (83 percent of the total ROI population) (USCB 2010-1), and is also the fastest-growing region in the State of Alaska, largely due to its low housing costs, rural lifestyle, and its proximity to Anchorage (ALARI 2011-2). Approximately 90 percent of the population in the Matanuska-Susitna Borough resides along the road system between Willow and Sutton, south of the proposed action. Major communities in

the borough include Palmer, Knik-Fairview, Lakes, Tanaina, Wasilla, and Meadow Lakes (ALARI 2011-2).

The Southeast Fairbanks Census Area is located in the eastern portion of the Alaska Interior Region. In 2010, the population in this census area totaled 7,029 persons (6.5 percent of the total ROI population) (USCB 2010-1). The majority of the population reside in the four communities of Deltana, Tok, Delta Junction, and Big Delta (ALARI 2011-3). Deltana has the largest population and is also the largest in land size of the four major communities.

The Valdez-Cordova Census Area is one of three defined areas in the Gulf Coast Region of the state in south-central Alaska. It is bounded on the south by Prince William Sound. In 2010, the population in this census area totaled 9,636 persons (9.0 percent of the total ROI population) (USCB 2010-1). The majority of the population resides in the home rule cities of Valdez or Cordova (ALARI 2011-4).

The total population below the airspace for the proposed action alternatives under consideration, as calculated through the use of geographic information system (GIS) data, are listed in [Table 3-22](#). Alternative A had the greatest number of persons under the airspace. There are approximately 206 persons under the airspace for Alternative A, the majority of which are in the Southeast Fairbanks Census Area. Alternative E had the second highest calculated population under the airspace with 169 persons.

Table 3-22. Population Under the Airspace, 2010

Areas	Total Population ¹	Alternative A	Alternative E
Denali Borough	1,826	0	0
Matanuska-Susitna Borough	88,995	64	40
Southeast Fairbanks Census Area	7,029	76	76
Valdez-Cordova Census Area	9,636	66	53
Total ROI	107,486	206	169

¹ GIS-derived calculations.
Key: ROI=region of influence.
Source: USCB 2010-1.

HOUSING

During public scoping, concerns were expressed that property values would be impacted by noise from low-level flights associated with the proposed action. For a detailed description of baseline noise conditions in the area see Section [3.1.2.1](#). Many factors affect the market value of real property. While qualities of the property itself, surrounding properties, and the local real estate market are primary determinants of value, ambient noise levels could also play a role in determining market value. Several studies have analyzed property values as they relate to military and civilian aircraft noise. These studies, however, only consider properties near an airfield, not necessarily properties within an airspace as would be the case with properties within the area of the proposed action. In one study (Fidell et al. 1996), a regression analysis of property values as they relate to aircraft noise at two military installations was conducted. This study found that, while aircraft noise at these installations may have had minor impacts on property values, it was difficult to quantify that impact. Another study (Nelson 2003) analyzed 33 other studies attempting to quantify the impact of noise on property values. The result of the study

supports the idea that the potential for an adverse impact on property values as a result of aircraft noise exists, and that the value of a specific property could be reduced between 0.5 and 0.6 percent per decibel when compared with a similar property that is not affected by aircraft noise. Additional data indicate that the reduction in property values as a result of noise would be greater for noise levels above 75 dB DNL, which the EPA considers incompatible with residential use.

ECONOMIC ACTIVITY

In 2009, total employment in the Denali Borough was 2,099 (BEA 2011-1). The main industry reported in the borough was the accommodation and food services industry (44 percent), followed by government and government Enterprises (18.4 percent), and the transportation and warehousing industry (6.1 percent) (BEA 2011-1). The majority of employed residents of the Denali Borough were maintenance and repair workers (ALARI 2011-1).

In 2009, total employment in the Matanuska-Susitna Borough was 31,896 (BEA 2011-1). The main industry reported in the borough was the government and government enterprises industry (14.8 percent), followed by retail trade (14.5 percent), and the health care and social assistance industry (12.2 percent) (BEA 2011-1). The majority of Matanuska-Susitna residents work in Anchorage (ALARI 2011-2). However, most residents of the Matanuska-Susitna Borough that work in the borough were employed as retail salespersons (ALARI 2011-2).

In 2009, total employment in the Southeast Fairbanks Census Area was 3,777 (BEA 2011-1). The main industry reported in the Census Area was the government and government enterprises industry (23 percent), followed by retail trade (8.7 percent), and administrative and waste services (8.7 percent) (BEA 2011-1). The majority of employed residents of the Southeast Fairbanks Census Area were employed as maids and housekeeping workers (ALARI 2011-3).

In 2009, total employment in the Valdez-Cordova Census Area was 7,235 (BEA 2011-1). The main industry reported in the Census Area was the government and government enterprises industry (22.1 percent), followed by the transportation and warehousing industry (10 percent), and the manufacturing industry (10 percent) (BEA 2011-1). The majority of employed residents of the Valdez-Cordova Census Area were employed as construction laborers (ALARI 2011-4).

KEY INDUSTRIES

Key industries in the region that could be potentially affected by the proposed action include natural resources and mining, recreation and tourism, and civilian aviation.

Natural Resources and Mining

There are several mines in the general vicinity of the proposed action. Two of the largest in the area include the Usibelli Coal Mine and the Pogo Mine. Founded in 1943, the Usibelli Coal Mine is located in the Alaska Range of mountains near the town of Healy, Alaska, in the Denali Borough. The Usibelli Coal Mine is the only operational coal mine in Alaska and employs approximately 95 persons (Usibelli Coal Mine 2011). The Pogo Mine, commissioned in 2006, is 37 miles northeast of Delta Junction. The Pogo Mine has a workforce of approximately 320 persons (ADNR 2011-14). [Table 3-23](#) details the total number of workers employed by the Natural Resources and Mining industry and the percentage who live in the borough or census area.

Table 3-23. Natural Resources and Mining Workers by in the Region of Influence, 2009

Region	Number Employed	Percent of Those Who Live in the Borough/Census Area
Denali Borough	123	15
Matanuska-Susitna Borough	2,677	8
Southeast Fairbanks Census Area	135	5
Valdez-Cordova Census Area	193	4

Source: ALARI 2011-1, 2011-2, 2011-3, 2011-4.

Recreation and Tourism

The amount of amenities and natural resources available in Alaska all promote a high quality of life and are an important economic component of Alaskan communities. The Alaska tourism industry is highly seasonal, with the majority of visitors traveling between May and September. The Denali Borough, Matanuska-Susitna Borough, and the Southeast Fairbanks Census Area are part of the Interior Region. Between October 2008 and September 2009, the direct, indirect, and induced effects of visitor industry employment in the Interior Region totaled 6,200 jobs, \$205 million in labor income, and \$519 million in spending (McDowell Group Inc. 2010). The Valdez-Cordova Census Area is part of the Southcentral Region, which had the largest total visitor industry employment, labor income, and spending in Alaska from October 2008 through September 2009. Total direct, indirect, and induced effects of visitor industry employment in the Southcentral Region totaled 17,600 jobs, \$514 million in labor income, and \$1,751 million in spending (McDowell Group Inc. 2010). Additional details on recreational areas and activities in the vicinity of the proposed action are provided in Section [3.1.10.1](#), Land Use, Affected Environment.

Civilian Aviation

Several public and private airports are within 10 NM of the proposed airspace. Civilian aviation contributes to the local economy and is relied upon for travel, safety, firefighting, recreation, hunting, mining, oil and gas development, and supplies. For more detailed information on civilian aviation in the ROI, see Section [3.1.1.1](#), Airspace Management and Use, Affected Environment.

3.1.12.2 Impact Assessment Methodology

The socioeconomic impact analysis examines the potential effects of the proposed action on the social and economic resources of the ROI. These social and economic resources are defined in terms of resident population and economic activity. Under the proposed action, Air Force personnel, operation procedures, and maintenance procedures would not be expected to change from baseline conditions. Potential secondary socioeconomic effects of the proposed action have been evaluated for airspace use, noise conditions, and safety in the affected area. The potential effects of the airspace modifications and changes in airspace use were evaluated to determine their potential impacts on the population, economic activity, and land values in the ROI. If potential socioeconomic impacts would result in substantial shifts in community characteristics, including property values, employment, income, and social well being, then impacts would be considered significant.

3.1.12.3 Environmental Consequences

3.1.12.3.1 Alternative A

The major concerns for socioeconomic resources associated with the proposed action, as identified by scoping and draft EIS public review comments, are potential effects to property values and commercial and general aviation. Under Alternative A, there are approximately 206 persons (see [Table 3-22](#)) within the extent of the census block that has been defined under the restricted airspace. However, the low population density under the proposed low-level airspace makes it highly unlikely that noise from flight activity associated with the Fox 3 MOA and new Paxon MOA would have significant social or economic impacts on the region. An individual or animal could on occasion be startled by an overflight at a specific time and place. However, a low-level overflight would be difficult to predict given the rural nature of the area, the random and dispersed nature of flight operations, and the large airspace area. An individual startled by a low-level overflight could see the overflight as an impact. The duration of a low-level overflight would be brief, and any related noise is not expected to have any effect on other aircraft flying the region. However, the fact that a low-level event could occur at any time and at any location, even infrequently, could be identified as a potential impact by some individuals while undertaking work-related tasks.

Under the proposed action, flight activity would occur over an expanded area and at a lower altitude. Thus, subsonic noise levels are projected to increase by a discernable amount but would remain below 55 dB L_{dnmr} in areas beneath the proposed airspace. Supersonic noise would remain below 62 dB CDNL. This level represents a threshold below which adverse noise effects to human populations are generally not expected. However, areas not currently overlain by MOAs in which baseline noise levels are extremely low would experience an estimated noise increase greater than 10 dB. Based on [Table 3-22](#), up to 206 persons in the ROI could potentially experience this increase in noise. As stated in Section [3.1.2.2](#), areas that experience an increase in noise level greater than 10 dB could be significantly impacted. However, actual noise levels would vary due to several factors specific to a particular noise event. Thus, the level of impact by residents would be determined during the public and agency review of the Draft EIS. Creating avoidance areas over populated residential areas (i.e., residential areas surrounding Lake Louise) as outlined in Section [3.1.3.4](#) could minimize the degree of impact on residents. The complex nature of property valuation factors makes any estimation of the potential effects of noise from airspace modifications on land values highly speculative. Communities and private airports all exist and function under existing airspace. Other socioeconomic factors, such as business activity, employment, interest rates, land scarcity (or availability), and the nature of the local housing market are much more likely to affect property values than the change in noise as a result of the proposed training airspace modifications.

Impacts on key industries such as energy development and mining are expected to be low. The Air Force would coordinate with FAA and other regulatory agencies to evaluate energy development proposals under the proposed airspace on a case-by-case basis. If there were concerns about an energy development proposal, the Air Force would raise those concerns to the appropriate authority. In addition, overflight activities are not expected to significantly impact mining operations, especially since activities can be communicated in advance and an avoidance area can be identified and pilots briefed as part of the training mission.

Comments during public scoping expressed concerns that the expansion of the Fox 3 MOA and creation of the Paxon MOA would affect commercial and general aviation, and thereby potentially result in economic effects to regional business and communities. As described in Section [3.1.1.3](#), Airspace Management, the proposed modifications to and establishment of airspace in the vicinity of the Fox 3 MOA and Paxon MOA would potentially result in impacts to civil aviation that use established airways,

jet routes, and airfields in the area. Impacts to civil aviation would potentially occur only during times when the military airspace is activated, which would be limited in frequency and duration. Potential civil aviation impacts (described in Section 3.1.1.3) may include significantly increased flight distances and increased flight time when the airspace is active and either pilots elect not to transit the MOAs, or pilots flying to and from private airports or airfields are directed by ATC to divert their flight routes to avoid the active airspace and military activities. To the extent that they would occur, these potential aviation impacts would result in economic impacts due to additional operating costs (primarily related to increased fuel use) associated with avoiding active airspace, and the costs of any expended efforts in tracking the airspace status through available advisory services.

Such impacts would depend on civil air traffic densities/peak periods and the individual areas and time frames in which the proposed military flight activities would occur. The FAA and Air Force would address any impacts and mitigation measures to be taken before implementation of any airspace proposals. This would include advanced coordination between military scheduling agencies and the Air Force, to avoid those time periods and altitudes that are most problematic for the ATC system. In addition, commercial and general aviation routinely experience flight diversions due to weather, airport delays, air traffic congestion, air traffic deconflictions, flight safety, and other such conditions that are unrelated to military airspace use.

The economic impacts of any commercial or other civil aviation aircraft being delayed or diverted to any extent around the proposed airspace when active cannot be quantified due to the many factors to be considered in estimating such impacts. These factors include aircraft type and weight, type and number of engines, an aircraft's phase of flight and altitude at the time of a diversion, air traffic conditions, the additional time/distance incurred by any diversion, etc. Other factors such as maintenance, labor, and aircrew costs would also have to be considered, as applicable, for commercial and general aviation impacts. Economic impacts to general aviation pilots would depend on routes of flight and decisions on whether to delay flight when the airspace is active versus flying through or avoiding the active airspace. Fuel consumption rates for the different turboprop and jet aircraft types are identified in technical manuals and other documents that provide operators with a general basis for estimating fuel use for flight planning and other purposes. Fuel use alone is not the only factor to be considered in determining the cost of any flight diversion. Aircraft fuel and operating costs would have to be examined in much more depth and in consideration of many other factors for those aircraft types that could be potentially affected by flight diversions around the airspace.

3.1.12.3.2 Alternative E (Preferred Alternative)

Under Alternative E, the Fox 3 MOA would be similar as described under Alternative A; however, the Fox 3 MOA would be smaller in size from that proposed under Alternative A with the southern boundary moved approximately 20 NM to the north and no subdivisions. Moving the southern boundary of the Fox 3 MOA 20 NM to the north would avoid a large proportion of the population in the Lake Louise area. Potential impacts under this alternative are similar to those described under Alternative A; however, this alternative avoids the area near Lake Louise and there are fewer persons identified overall under the airspace and thus fewer persons who could be potentially impacted under this alternative. In addition, the creation of avoidance areas over residential areas and economic centers, in particular north of Lake Louise that still lie within the southern MOA boundary, could minimize potential socioeconomic impacts from noise. Commercial and general aviation would remain similar to those as described under Alternative A.

3.1.12.3.3 No Action Alternative

Under the No Action Alternative, no new airspace would be created and no expansion to the existing Fox 3 MOA would be created. Existing activities in the Fox 3 MOA would continue under the current procedures and guidelines. Therefore, no changes to socioeconomic resources from current existing conditions are expected.

3.1.12.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse impacts. The following mitigations are proposed to reduce these impacts.

- **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.
- **Concentrated Activity Areas.** Comply with flight avoidance areas established by the 11th AF Airspace and Range Team and listed in the 11th AF Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th AF Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist).

3.1.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.1.13.1 Affected Environment

The ROI for this proposed action includes communities under or within 20 NM of the proposed Fox 3 MOA expansion and new Paxon MOA. Detailed characteristics of these communities, including characteristics of the Federal and State subsistence uses, are provided in [Table 3-24](#). The distance of 20 NM was used as a best estimate of the maximum distance traveled by subsistence hunters without the use of aircraft. The ROI was narrowed to the communities within 20 NM in order to provide the characteristics of those communities who depend on the affected subsistence resources and may have fewer opportunities to find alternative subsistence resources. For other communities that are outside of the 20 NM ROI and still participate in subsistence activities within the ROI, the potential impacts would be the same as those described below.

Table 3-24. Subsistence Communities in the Vicinity of the Proposed Action

Village	2010 Population	Percent Alaska Native	Percent of Households Participating in Subsistence	State Subsistence			Federal Subsistence
				Most Representative Year	Species	Estimated Harvest (lb)	Hunting and Fishing Subsistence Areas
Cantwell	219	15.5	97.4	1999	Salmon (varying species)	4,630	Yukon-Northern Area Subsistence Fishing
					Non-Salmon Fish (varying species)	2,081	
					Large Land Mammals (bison, black bear, brown bear, caribou, moose, Dall sheep)	17,361	Unit 13E, Nelchina-Upper Susitna
					Small Land Mammals (beaver, coyote, fox, red fox, hare, marten, mink, muskrat, porcupine, squirrel, weasel, wolf, wolverine)	970	
					Birds and Eggs (includes migratory birds)	801	
					Marine Invertebrates (clams, crabs, shrimp)	125	N/A
					Vegetation (berries, plants, greens, mushrooms, wood)	1,627	N/A
Chickaloon	272	6.3	100	1982	Salmon (varying species)	505	Unit 13A, Nelchina-Upper Susitna Cook Inlet Area Subsistence Fishing
					Non-Salmon Fish (varying species)	2,688	
					Large Land Mammals (bison, black bear, caribou, moose, Dall sheep)	1,145	
					Small Land Mammals (beaver, coyote, fox, hare, marten, muskrat, porcupine, squirrel)	1,123	
					Birds and Eggs (includes migratory birds)	560	
					Vegetation (berries, plants, greens, mushrooms)	1,143	
Chistochina	93	63.40	100	1987	Salmon (varying species)	10,197	Prince William Sound Subsistence Fishing
					Non-Salmon Fish (varying species)	2,199	
					Large Land Mammals (black bear, caribou, moose, Dall sheep)	6,598	Unit 13C, Nelchina-Upper Susitna
					Small Land Mammals (beaver, coyote, fox, red fox, hare, land otter, marten, mink, muskrat, porcupine, wolf)	322	
					Birds and Eggs (includes migratory birds)	186	
					Marine Invertebrates (clams, crab, shrimp)	34	N/A
					Vegetation (berries, plants, greens, mushrooms, wood)	1,048	N/A

Table 3-24. Subsistence Communities in the Vicinity of the Proposed Action (Continued)

Village	2010 Population	Percent Alaska Native	Percent of Households Participating in Subsistence	State Subsistence			Federal Subsistence
				Most Representative Year	Species	Estimated Harvest (lb)	Hunting and Fishing Subsistence Areas
Dot Lake	62	73.70	100	1987	Salmon (varying species)	1,329	Yukon-Northern Area Subsistence Fishing
					Non-Salmon Fish (varying species)	2,094	
					Large Land Mammals (black bear, caribou, moose)	3,177	Unit 20D, Fairbanks-Central Tanana
					Small Land Mammals (beaver, fox, red fox, hare, lynx, marten, mink, porcupine, weasel, wolverine)	308	
					Birds and Eggs (includes migratory birds)	148	
					Vegetation (berries, plants, greens, mushrooms, wood)	499	N/A
Gakona	218	17.70	92.7	1987	Salmon (varying species)	6,074	Prince William Sound Subsistence Fishing
					Non-Salmon fish (varying species)	2,476	
					Large Land Mammals (bison, black bear, brown bear, caribou, moose, Dall sheep)	9,936	Unit 13A, Nelchina-Upper Susitna
					Small Land Mammals (beaver, coyote, fox, red fox, hare, land otter, marten, mink, muskrat, squirrel, weasel, wolf, wolverine)	140	
					Birds and Eggs (includes migratory birds)	424	
					Marine Invertebrates (clams, crabs, shrimp)	93	N/A
					Vegetation (berries, plants, greens, mushrooms, wood)	774	N/A
Glennallen	483	12.10	100	1987	Salmon (varying species)	19,136	Prince William Sound Subsistence Fishing
					Non-Salmon Fish (varying species)	6,152	
					Large Land Mammals (bison, black bear, caribou, moose, musk ox, Dall sheep)	20,053	Unit 13A, Nelchina-Upper Susitna
					Small Land Mammals (beaver, coyote, fox, red fox, hare, marten, muskrat, weasel)	366	
					Birds and Eggs (includes migratory birds)	174	
					Marine Invertebrates (clams)	26	N/A
					Vegetation (berries, plants, greens, mushrooms, wood)	778	N/A

Table 3-24. Subsistence Communities in the Vicinity of the Proposed Action (Continued)

Village	2010 Population	Percent Alaska Native	Percent of Households Participating in Subsistence	State Subsistence			Federal Subsistence
				Most Representative Year	Species	Estimated Harvest (lb)	Hunting and Fishing Subsistence Areas
Gulkana	119	73.90	95	1987	Salmon (varying species)	5,777	Prince William Sound Subsistence Fishing Area
					Non-Salmon Fish (varying species)	629	
					Large Land Mammals (black bear, caribou, moose)	3,036	Unit 13A, Nelchina-Upper Susitna
					Small Land Mammals (beaver, coyote, fox, red fox, hare, land otter, lynx, marten, mink, muskrat, porcupine, weasel, wolf, wolverine)	527	
					Birds and Eggs (includes migratory birds)	92	
					Vegetation (berries, plants, greens, mushrooms, wood)	176	N/A
Paxson	40	0.0	92.9	1987	Salmon (varying species)	1,730	Prince William Sound Subsistence Fishing
					Non-Salmon Fish (varying species)	2,432	
					Large Land Mammals (bison, caribou, moose, Dall sheep)	5,404	Unit 13B, Nelchina-Upper Susitna
					Small Land Mammals (beaver, coyote, fox, hare, land otter, marten, mink, muskrat, porcupine, weasel, wolf)	971	
					Birds and Eggs (includes migratory birds)	583	
					Vegetation (berries, plants, greens, mushrooms, wood)	115	N/A

Key: lb=pounds; N/A=not applicable.

Source: ADCCED 2011; ADFG 2011-4; USFWS 2010-1, 2010-2.

The State subsistence information, provided by the ADFG, includes information for the most representative year for each community. As discussed in Appendix B, State subsistence is open to Alaska residents on State or private land. Regional and village Native corporation lands are considered private lands and are managed under State subsistence guidelines. Regulations regarding the State subsistence priority, amount of harvest, harvest season, and methods used in the harvest are dictated by the Alaska Board of Fisheries and the Alaska Board of Game. ADFG attempted to survey the maximum number of households in each community to gain an adequate sampling of the community and their subsistence habits. Several of these communities have more up-to-date data on a limited set of species; however, the information may not provide the most accurate description of the community's reliance on subsistence. Therefore, only the most representative year is presented in [Table 3-24](#) as the best data available to provide a complete evaluation of potential impacts to subsistence and subsistence species per 40 CFR 1502.22. Public comments suggested other resources for more recent data; however, upon the Air Force's review it was determined that these resources were dependent on the same data being used in this EIS, or data collection was currently underway and would not be available in time for incorporation into this EIS. During public comments, a representative of the Alaska Outdoor Council did note that in 2010 there were 5,015 reported hunters in GMU 13 hunting moose while 4,887 hunters reported hunting caribou from the Nelchina herd (Amo 2012).

Federal subsistence is open on Federal public land only to Alaska residents living in rural communities. Federal public land includes land owned and managed by the BLM, NPS, USFS, and USFWS. Regulations regarding Federal subsistence priority, amount of harvest, harvest season, and methods used in harvest are dictated by the Federal Subsistence Board, which includes agency heads of USFWS, National Park Service, BLM, BIA, and USFS. [Table 3-24](#) provides information on the Federal subsistence management areas for hunting and fishing for each community. [Figure 3-23](#) shows these management units in relation to the proposed actions in addition to the Federal nonrural and State nonsubsistence areas, which are described in more detail in Section [3.2.13](#). Information on subsistence harvests on Federal public land near these communities is not available. All subsistence participants are required to have appropriate permits prior to subsistence harvesting.

Most of the area under the existing Fox 3 MOA is within the Nelchina–Upper Susitna Federal subsistence management area, specifically in GMUs 13A, 13B, and 13E and the Cook Inlet and Prince William Sound subsistence fishing areas. A comment on the DEIS noted that berry picking is an important activity that occurs within late July and August, while moose and caribou seasons in GMU 13 also starts in early August. The month of March is another important time for hunting caribou for local residents. In addition, subsistence activities are prevalent during May, June, July and October, with many persons using air access to get to their preferred areas for subsistence harvesting. More detailed information on species and habitats in the ROI is provided in Section [3.1.8](#), Biological Resources.

3.1.13.2 Impact Assessment Methodology

Many small communities in Alaska are wholly or largely dependent on subsistence use of renewable resources. Subsistence use can be the principal means of support for communities and families that do not participate in a wage-oriented economy. Subsistence activities provide a means for economic self-sufficiency, particularly for rural communities, which may not have regular access to year-round employment or year-round access to stores for household food purchases.

Section 810(a) of the Alaska National Interest Lands Conservation Act (ANILCA) requires that an evaluation of subsistence uses and needs be completed for any Federal determination to “withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands.” Such an evaluation of the potential impacts on subsistence under the ANILCA 810(a) must be completed for this EIS. The ANILCA requires that this evaluation include findings on three specific issues: the effect of use,

occupancy, or disposition on subsistence uses and needs; the availability of other lands for the purposes sought to be achieved; and other alternatives that would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes (16 United States Code [U.S.C.] 3120).

The evaluation and findings required by the ANILCA 810 are set out for each of the proposed actions considered in this EIS. To determine if a significant restriction of subsistence uses and needs may result from any of the proposed actions or their cumulative effects, the following three factors in particular are considered: reduction in the availability of subsistence resources caused by a decline in the population or amount of harvestable resources; reductions in the availability of resources used for subsistence purposes caused by alteration of their normal location and distribution patterns; and limitations on access to subsistence resources, including limitations attributable to increased competition for such resources. A significant restriction on subsistence may occur in at least two instances: (1) when an action substantially reduces populations or their availability to subsistence users, and (2) when an action substantially limits access by subsistence users to resources. The environmental consequences section of this EIS for each proposed action indicates whether that action would significantly restrict the availability of, or access to, subsistence resources.

A finding that the proposed action may significantly restrict subsistence uses imposes additional requirements including notices to the State of Alaska and appropriate regional and local subsistence committees, a hearing in the vicinity of the area involved, and the following determinations as required by ANILCA 810(a)(3):

- Such a significant restriction of subsistence uses is necessary, and consistent with sound management principles for the utilization of public lands.
- The proposed action will involve the minimal amount of public lands necessary to accomplish the purposes of use, occupancy, or other disposition.
- Reasonable steps will be taken to minimize adverse effects upon subsistence uses and resources resulting from such actions.

Another factor used to determine the significance of these potential impacts concerns the dependence of the affected communities on subsistence resources. Dependence was determined by several factors including the rural nature of the community, proximity of the community's primary subsistence area of the proposed action, availability of other employment opportunities, and whether the communities are predominantly Alaska Native. The emphasis on the Alaska Native population is not meant to downplay the importance of subsistence to rural non-Native residents. This factor is only used to acknowledge that Alaska Natives have a particular sensitivity to subsistence resources due to the higher level of dependency through low employment and economic opportunities and cultural practices. Based on these factors, a community's dependence was ranked as high, medium, or low and the results presented in the environmental consequences section of this chapter for each proposed action. Communities where more than 80 percent of the population participates in subsistence and/or more than 50 percent of the community is composed of Alaska Natives are ranked as having a high dependence on subsistence resources. Adverse impacts on the accessibility of subsistence resources may be perceived as significant for communities and individuals with high dependency on subsistence resources depending on the availability of other accessible areas to harvest resources while adverse impacts on the availability of subsistence resources such, as a reduction in the population or normal behavior of the resources, may be perceived as significant for communities and individuals with high and medium dependence on subsistence resources.

3.1.13.3 Environmental Consequences

The following communities are ranked as high in dependency on subsistence resources: Cantwell, Chickaloon, Chistochina, Dot Lake, Gakona, Glennallen, Gulkana, and Paxson.

3.1.13.3.1 Alternative A

The expansion of the Fox 3 MOAs and the establishment of the Paxon MOA would not restrict ground access to traditional use areas or hunting locations beneath the new airspace. Subsistence users would have the same access and availability to subsistence resources from the ground as under current conditions.

The new and expanded airspace, however, may result in a restriction of access by aircraft to areas or landing fields below or in the vicinity of the airspace. Aircraft are often used in the subsistence harvests, particularly for times of year in which traditional use areas are not accessible by ground vehicles. Wildlife surveys are also regularly conducted by aircraft to gauge populations and health, information that is then taken into consideration when the ADFG determines subsistence priorities and the amount of takes permitted.

Operations and potential impacts on general aviation and airports are detailed in Section [3.1.1](#). The Paxon Low MOA would only be used during MFEs, which would occur no more than 60 days per year. Advanced notification of the MFE schedule for the year would be published in accordance with the guidance established by the 1997 *Alaska MOA EIS* mitigations, and MFEs would not be scheduled for the months of September, December, or January. The following discussion details more of the day-to-day operation of the new Fox 3 MOAs but is also applicable to those times when the Paxon MOA is active. The proposed Fox 3 MOAs and Paxon MOA would not prohibit civil aviation use because MOAs are joint use airspace; civil pilots are permitted to fly through an active MOA using VFR see-and-avoid.

When the MOAs are inactive, IFR traffic would be permitted. The Air Force would continue to use the SUAIS and other communications to provide information on when the airspace is active. Civil pilots would have to check these resources to find the status of the MOAs prior to and during a general aviation flight in order to learn if IFR traffic would be let through MOAs. In addition, the stratification of the new MOAs would allow the Air Force to schedule and activate the low-altitude MOAs only when required for training. Once low-level training is completed, the low-altitude MOAs would be released and civil IFR traffic on the Victor routes and jet routes through the low Paxon MOA would be permitted. In addition, other IFR traffic could be routed by ATC through any inactive MOA, including the Fox 3 MOA. The low-altitude MOAs are not expected to be scheduled and activated daily. Therefore, access to subsistence resources by aircraft would not be restricted to those civil pilots willing to fly VFR through an active MOA. However, for those pilots unwilling to fly VFR, or if weather conditions do not permit VFR, additional wait times or delays may be expected until the MOAs are released to IFR traffic. These delays are not expected to be a daily occurrence, particularly for the low-altitude MOAs. Since a delay in participating in subsistence activities could result in lost opportunities to harvest subsistence resources, a delay in harvesting subsistence resources could be perceived by those individuals and communities with a high dependence on subsistence resources as an impact depending on the length of the delay.

For the ADFG and other agencies conducting wildlife surveys, coordination with the Air Force on the scheduling of the survey flights and military flights could deconflict the airspace and allow survey flights to be conducted with minimal disruption. Per FAA regulations, public airports require an avoidance area of 3 NM in radius and 1,500 feet AGL, while private airfields require an avoidance area of 1 NM in radius and 1,000 feet AGL. These avoidance areas allow the airports and airfields to accommodate incoming and outgoing aircraft while the MOA airspace is active.

Noise and residual materials from chaff and flares also have the potential to affect the wildlife and vegetation resources harvested by subsistence users. This proposed action's impacts on wildlife and vegetation are detailed in Section 3.1.8 while noise impacts are discussed in Section 3.1.2. As discussed in the biological resources section, low-level flights and supersonic events have noise and startle impacts on species on the ground. Noises that are close, loud, and sudden and combined with a visual stimulus produce the most intense reactions. Impacts on caribou and Dall sheep were of primary concern during scoping, as the area beneath the proposed Fox 3 MOAs and the new Paxon MOA include some of the largest hunting grounds for caribou as well as lambing and rutting areas for caribou and Dall sheep.

As described in Section 3.1.8, with the incorporation of mitigation measures and current flight restrictions over calving/lambing grounds, it is expected that this proposed action would have minor to moderate effects on wildlife that would not be measurable at the population level and would not be significant. The mitigation measures to be incorporated by the Air Force into the proposed action include the mitigations from the 1997 *Alaska MOA EIS*, by which all of Alaska airspace is currently operated to ameliorate potential adverse impacts. These mitigations include ensuring minimum overflight altitudes of 5,000 feet AGL over Dall sheep lambing areas and spring mineral licks and limiting overflights of “at-risk” wildlife during critical life periods determined in coordination with the ADFG. The Air Force also coordinates annual Letters of Agreement with the ADFG to avoid overflights of caribou calving areas. The Air Force would also minimize impacts on subsistence resources and subsistence hunting by not conducting MFEs during January, September, or December. Additionally, as suggested by comments received during scoping, the Air Force would consider regular meetings with regulating agencies and with communities dependent on subsistence resources under the proposed airspace with a view to monitoring the impacts of Air Force activities on subsistence.

Section 3.1.8 also describes potential effects of chaff and flare residual materials on wildlife species. The total amount of chaff and flares used in the new airspace is not projected to change under this proposed action. The area underlying the existing Fox 3 MOA is currently exposed of chaff and flare residual materials. Lowering the floor of the Fox 3 MOA would not change the dispersion of the residual materials. The amount of residual materials beneath the Fox 3 MOA can be expected to decrease as the total amount of chaff and flares used would be dispersed over a larger area, to include the new Fox 3 MOAs. In accordance with the 1997 *Alaska MOA EIS* mitigations, flares would be released at a minimum altitude of 5,000 feet AGL between June and September and 2,000 feet AGL between October and May. Flares are designed to burn out within 500 vertical feet from release.

Chaff and flare residual materials are not expected to have adverse impacts on wildlife, either birds, fish, or vegetation (see Section 3.1.8). Therefore, chaff and flare residual materials are not expected to adversely affect the population of subsistence wildlife or vegetation.

Therefore, with advanced notice of activation of the airspace through the SUAIS, and inclusion of the 1997 *Alaska MOA EIS* mitigations into the daily scheduling and operation of the airspace areas, no significant impacts to subsistence uses and resources are anticipated as defined by ANILCA.

3.1.13.3.2 Alternative E (Preferred Alternative)

Under Alternative E, the expanded Fox 3 MOA would be less extensive than that described for Alternative A. However, the altitude structure, number of proposed sortie-operations, and the use of chaff and flares would be the same under Alternative E as those described under Alternative A. Therefore, potential impacts to subsistence resources would be the same as Alternative A for those communities and subsistence areas beneath the proposed airspace in this alternative. Potential impacts to subsistence resources from the new Paxon MOA would be the same as those described under Alternative A.

3.1.13.3 No Action Alternative

Under the No Action Alternative, flight training would continue in the existing Fox 3 MOA with no expansions or new airspace being created. Civil aviation would be permitted under the same guidelines described in Section [3.1.1](#), and wildlife/vegetation species would be affected by the conditions described in Section [3.1.8](#). Therefore, subsistence resources and access to those resources would be the same as described in Section [3.1.13](#).

3.1.13.4 Mitigations

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts on subsistence resources. Mitigations proposed for other resources may benefit subsistence resources (see Sections [3.1.1.4](#), [3.1.3.4](#), [3.1.8.4](#), and [3.1.10.4](#)). In addition, the following proposed mitigation would reduce impacts on subsistence resources.

- **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.

3.1.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.1.14.1 Affected Environment

The affected environment for the Fox 3 MOA expansion and new Paxon MOA proposal includes two boroughs and two census areas in which some portion of the proposal footprint is located. [Figure 3-15](#) shows the location of this and other JPARC proposals. [Table 3-25](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children for areas composing the proposal area. Note that the table characterizes existing population groups in the affected environment at a general level of detail and does not indicate whether the proposal would create an environmental justice effect. Locations of Alaska Native tribes underneath the existing and proposed airspace are shown in [Figure 3-10](#). The list of tribes contacted for this EIS is contained in Appendix H, *Cultural Resources*.

The average percent minority in the proposal area ranges from 11.6 percent in Denali Borough to 27.9 percent in Valdez-Cordova Census Area, which is lower than the 35.9 percent average for the State of Alaska. The average percent low income ranges from 6.1 percent in Denali Borough to 11.6 percent in Southeast Fairbanks Census Area, compared to 9.6 percent for the State of Alaska. The average percent Alaska Native ranges from 5.5 percent in Matanuska-Susitna Borough to 13.6 percent in Valdez-Cordova Census Area, less than the 14.8 percent average for the state. The average percent children ranges from 22.5 percent in Denali Borough to 28.9 percent in Matanuska-Susitna Borough, similar to the 26.4 percent average for the state.

Table 3-25. Minority Population, Low-Income Population, and Children by Area

Fox 3 MOA Expansion and New Paxon MOA					
Area	Total Population	Percent Low-Income	Percent Minority	Percent Alaska Native	Percent Children
Valdez-Cordova Census Area	9,636	8.1	27.9	13.6	24.4
Matanuska-Susitna Borough	88,995	10.3	17.2	5.5	28.9
Denali Borough	1,826	6.1	11.6	3.6	22.5
Southeast Fairbanks Census Area	7,029	11.6	21.3	11.5	26.3
State of Alaska	710,231	9.6	35.9	14.8	26.4

Note: Except for the low-income data, which are based on the 2005–2009 American Community Survey conducted by the Census, numbers represent 2010 decennial Census data.

Key: MOA=Military Operations Area.

Source: USCB 2010-1, 2010-2.

3.1.14.2 Impact Assessment Methodology

As described in Appendix B, *Definition of the Resources and Regulatory Settings*, environmental justice considers whether impacts from an action are unequally borne by a particular segment of the affected population, specifically persons that are part of an ethnic or racial minority group, have low incomes, or are children.

The environmental justice impact methodology includes the following tasks:

Review impacts by alternative for 13 resources. This step includes reviewing project-level and cumulative impact conclusions in order to identify significant unavoidable impacts. Only those impacts that are classified as significant and unavoidable have the potential to create environmental justice effects. Other impacts would not be reviewed further. The resources to be analyzed include airspace management and use (Section [3.1.1](#)), noise (Section [3.1.2](#)), safety (Section [3.1.3](#)), air quality (Section [3.1.4](#)), physical resources (Section [3.1.5](#)), water resources (Section [3.1.6](#)), hazardous materials and waste (Section [3.1.7](#)), biological resources (Section [3.1.8](#)), cultural resources (Section [3.1.9](#)), land use (Section [3.1.10](#)), infrastructure and transportation (Section [3.1.11](#)), socioeconomics (Section [3.1.12](#)), and subsistence resources (Section [3.1.13](#)).

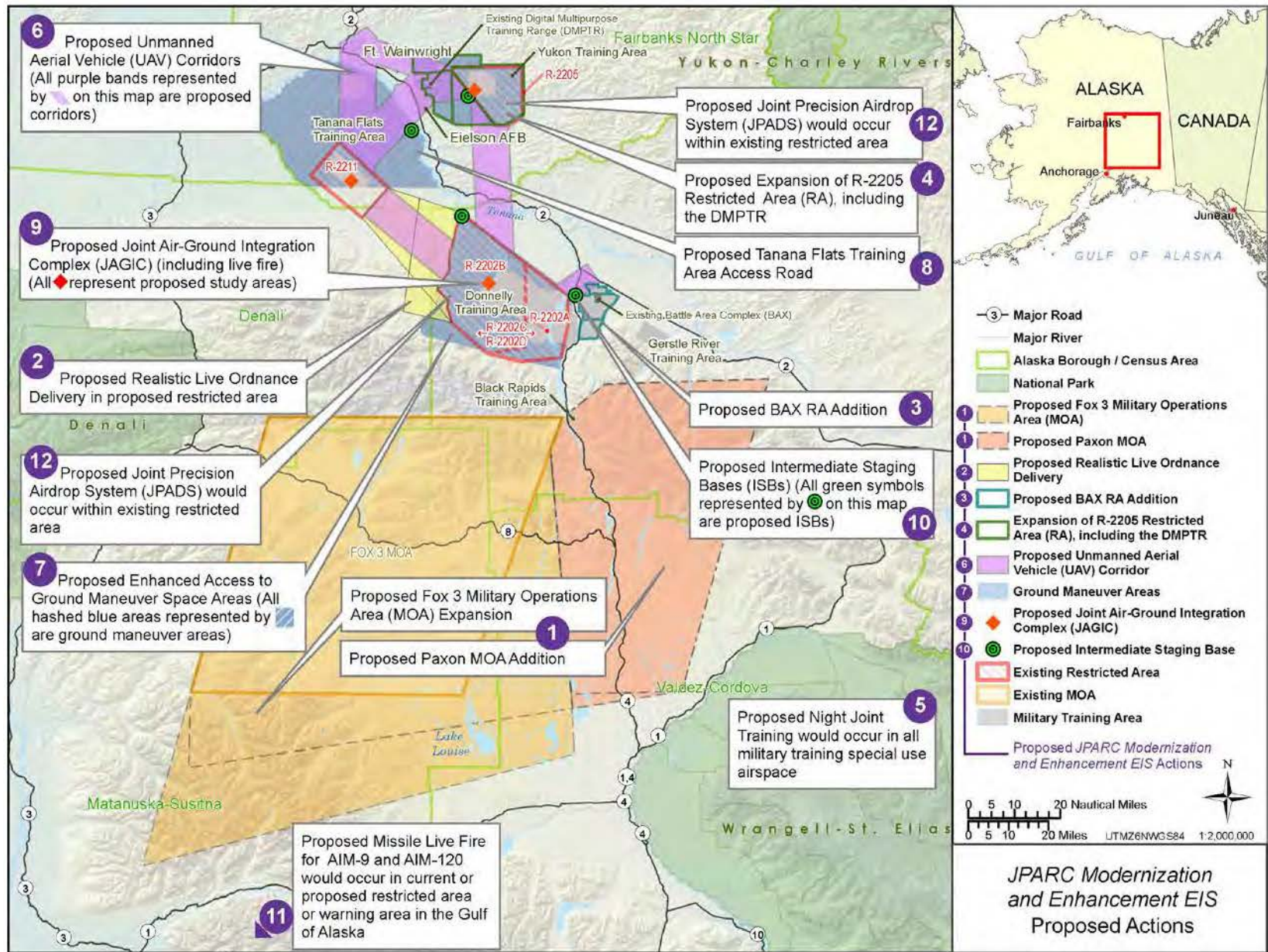


Figure 3-15. JPARC Modernization and Enhancement EIS Proposed Actions

Identify significant unavoidable impacts that would affect human populations. Significant unavoidable impacts that *would not* affect human populations would not be analyzed further because they would not have the potential to create environmental justice effects. For example, significant impacts on a wildlife species, assuming that it is not also important for recreation, hunting, subsistence, or cultural/traditional use would not be evaluated further. However, consultation with USFWS/NMFS/ADAC will be conducted for any species under protection of the ESA and MBTA.

Compile data on affected population groups and compare to surrounding populations. Use GIS to identify affected Native villages, communities, boroughs, and census areas. Use 2010 Census data to estimate affected minority populations and children. Use data from the 2005–2009 American Community Survey to estimate affected low-income populations. Calculate percent minority and percent low-income for adversely affected populations and compare to surrounding populations. Where applicable, identify schools or other child-serving organizations in affected areas to determine effects on children, mostly applicable in more densely populated areas. (*Note that no disproportionately high and adverse environmental or health effects on children are identified for any of the JPARC proposals.*) Disproportionately high and adverse environmental or health effects could be identified if percentages of affected minority or low-income populations in areas exposed to significant adverse effects (i.e., that may not be mitigated to less than significant) are appreciably greater than the general population.

3.1.14.3 Environmental Consequences

Fox 3/Paxon MOAs proposal Alternatives A and/or E could create the potential for unavoidable significant adverse impacts for the following resources evaluated to determine if they would cause disproportionately high and adverse environmental or health effects on minority and low-income populations or children: airspace management (Section [3.1.1.3](#)), noise (Section [3.1.2.3](#)), flight safety (Section [3.1.3.3](#)), and socioeconomics (Section [3.1.12.3](#)). Other resource impacts would not have the potential to create disproportionately high and adverse effects on minority or low-income populations or children and are not evaluated in detail. The topics of subsistence, and separately, traditional cultural resources and Alaska Native tribes are discussed briefly below as they relate to environmental justice, in order to provide an overview for this and other proposals in the EIS. These topics are not discussed elsewhere in the environmental justice sections for the definitive proposals because there would not be potential for unavoidable significant adverse impacts and therefore no disproportionately high and adverse environmental and health effects on minority and low-income populations or children would occur.

Adverse impacts on subsistence activities and access can be an environmental justice concern under EO 12898. Subsistence is discussed in detail in Section [3.1.13.3](#), which identifies the potential for adverse but less than significant subsistence impacts that may require mitigation. The impact is primarily related to limitations on civilian aircraft when military airspace is active, such that resultant delays or diversions could limit access to subsistence resources. Some of the subsistence communities that may be affected have a high percentage of Alaska Natives in the resident population and a high percentage of households participating in subsistence (see [Table 3-24](#)). The degree of impact would depend to some extent on how civilian pilots manage their flights within these constraints. A number of public concerns were expressed during scoping about these limitations. While some minority and low-income populations and children could be adversely affected by subsistence impacts, the underlying subsistence impact is not identified as significant in Section [3.1.13.3](#) or for other proposals in the EIS, and therefore environmental and health effects on these groups associated with subsistence impacts would not be disproportionately high and adverse.

Impacts on traditional cultural resources and Alaska Native tribes and activities can be an environmental justice concern under EO 12898. Cultural resource topics are discussed in greater detail in Section [3.1.9.3](#)

and briefly in this paragraph. No significant unavoidable impacts on traditional cultural resources or related Alaska Native activities are anticipated to result from the changes that would occur for this or other proposals identified in the EIS. In the event that previously unrecorded or unevaluated cultural resources are encountered, the Air Force would manage these resources in accordance with the NHPA and other Federal and State laws, Air Force and DoD regulations and instructions, and DoD American Indian and Alaska Native Policy (DoD 1998). Therefore, impacts on traditional cultural properties, if identified, would not result in disproportionate effects on Alaska Native tribes and ANCSA corporations. (Note that on JPARC proposals for which the Army is the proponent including the Battle Area Complex (BAX), Digital Multi-Purpose Training Range (DMPTTR), Enhanced Access to Ground Maneuver Space (EGMS), Tanana Flats Training Area (TFTA), Joint Air-Ground Integration Complex (JAGIC), Intermediate Staging Base (ISB), and Joint Precision Airdrop System (JPADS), the Army would be responsible for management actions and conducts the required consultation described above.)

3.1.14.3.1 Alternative A

Airspace management and use (Section 3.1.1.3). Alternative A could cause civilian pilots to delay or divert their flights while the military airspace is active. Changes in IFR and VFR flight would occur. When these MOAs are *inactive*, IFR air traffic would be permitted. When the MOAs are *active*, civil pilots would be permitted to fly through an active MOA using VFR see-and-avoid. However, for those pilots unwilling to fly VFR or if weather conditions do not permit VFR, additional wait times or delays may be expected until the MOAs are released to IFR traffic. The delays are not expected to be a daily occurrence, particularly for the lower altitudes. The extent to which such impacts may occur would depend on a pilot's decision to either delay or reroute their flights when this airspace is active at those altitudes or to fly through this airspace under see-and-avoid conditions. The public expressed concern about this issue.

Because resident populations would primarily experience airspace management impacts if they produced interrelated impacts on other resources such as socioeconomic (e.g., impacts on the local economy), flight safety (air mishaps), and subsistence resources (limited air access to harvest areas), no effects on minority or low-income populations or children are identified for airspace management impacts per se. Interrelated airspace management impacts are evaluated under other resource topics, where applicable. Airspace management impacts would therefore not create disproportionate effects on minority and low-income populations or children.

Noise (Section 3.1.2.3). Alternative A would create increases in subsonic noise levels of 10 dB or greater. While this final noise level would not increase to greater than 55 dB DNL, the USEPA identifies a threshold for impacts/increases in noise levels of 10 dB or greater as very noticeable, particularly in such a quiet environment. Mitigation in the form of new avoidance areas has been included but may not reduce all significant impacts on communities and inhabited areas. The population under the airspace for Alternative A is 206 persons of which approximately 22.1 percent are minority and 10.1 percent are low-income, which is considerably less than the State of Alaska's 35.9 percent minority population and approximately the same as its 9.6 percent low-income population. The community of Lake Louise is located under the Fox MOA, and has a total population of 46 persons including 6.5 percent minority. The community of Paxson is located under the new Paxson MOA and contains 40 persons of which approximately 5 percent are minority. The U.S. Census does not disclose poverty data for very small communities for privacy reasons and because interpretation of sample data for very small samples may not be meaningful. Based on available Census data, significant noise impacts on populations living under the military airspace would not result in disproportionately high and adverse effects for Alternative A.

Flight Safety (Section 3.1.3.3). The potential risk of a near miss/mid-air collision between military and VFR aircraft operating within active MOAs may not be fully avoided despite those initiatives/mitigations that ensure the active status of this airspace is publicized through available advisory services. Disproportionately high and adverse flight safety effects are not expected given the fact that populations living under the airspace comprise minority and low-income percentages that are less than or similar to the State of Alaska.

Socioeconomics (Section 3.1.12.3). Because of the unique dependence of residents and businesses on civilian aviation in the area, delays and diversions of civilian aircraft during active airspace times, combined with public scoping concerns, would result in the potential for significant adverse socioeconomic impacts. Additionally, significant noise impacts could affect residents and recreation and result in economic impacts. Socioeconomic impacts would not result in disproportionately high and adverse effects on minority or low-income populations or children because, as identified above, these impacts could affect a variety of businesses and inhabitants and would not primarily be borne by the population groups.

3.1.14.3.2 Alternative E (Preferred Alternative)

This alternative would reduce the size of the Fox 3 MOA compared to Alternative A with the southern boundary moved to the north. Like Alternative A, a new Paxon MOA would be established. Airspace management and flight safety impacts are not evaluated for environmental justice under this alternative because they would be less than significant.

- **Noise.** Fewer people would be located underneath the airspace under Alternative E, 169 persons instead of 209 persons, of which 22.4 percent are minority and 10.2 percent are low-income. Similar to Alternative A, no disproportionate effects would occur.
- **Socioeconomics.** Similar to Alternative A, no disproportionate effects would occur.

3.1.14.3.3 No Action Alternative

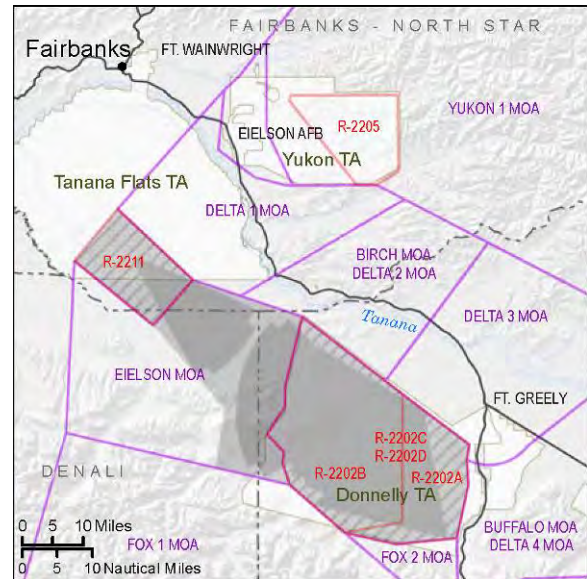
There would be no additional disproportionately high and adverse effects on minority and low-income populations or children from the No Action Alternative. Fox 3 MOA would remain as currently configured and no new Paxon MOA would be established.

3.1.14.4 Mitigations

No mitigations are identified for this resource.

3.2 REALISTIC LIVE ORDNANCE DELIVERY (DEFINITIVE)

The Air Force proposes to establish a realistic air and ground training environment that would accommodate live ordnance delivery of modern and emerging fighter aircraft and ordnance. The combined Realistic Live Ordnance Delivery (RLOD) proposal alternatives directly affect an area of 873,777 acres (1,365 square miles), of which 65 percent is military-owned land. (Refer to the gray-shaded area in the map to the right for orientation.) This action involves changes to military restricted airspace and utilizes underlying land to support Air Force training associated with live and inert weapons delivery from fighters and provide safety zones on both military and nonmilitary lands when training exercises are taking place. Potential for significant impacts for all resource topics is medium to high, with the exception of physical resources (low) and low to moderate for impacts to water, wetlands, and cultural resources. Following the impact



assessment for each resource, the final mitigations are listed that have been selected by the Army and Air Force to avoid, reduce, or implement management actions for potential significant adverse impacts from implementing the proposed action. These are included to provide the public and other agencies with necessary information on the final mitigations proposed by the Army and Air Force.

3.2.1 Airspace Management and Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.

3.2.1.1 Affected Environment

The following sections describe representative baseline uses of all military and civil airspace within the region encompassed by the Alternatives A and B airspace proposals shown in [Figure 3-16](#) and [Figure 3-17](#). These figures depict these airspace proposals relative to the aeronautical features depicted on the Fairbanks and Anchorage Sectional Charts and the Alaska IFR Enroute High Altitude (H-1) Chart for the areas potentially affected by these two alternatives (FAA 2011-1, 2011-2, 2011-3).

MILITARY AIRSPACE USE

MOAs/ATCAAs and Restricted Areas

The airspace uses primarily associated with the Alternative A and B proposed actions include the Eielson MOA/ATCAA; R-2202 A, B, C, and D; and R-2211, as shown in [Figure 3-16](#) and [Figure 3-17](#). R-2202 and its Oklahoma Impact Area are managed by the Army and used by the Cold Regions Test Center (CRTC), USARAK, and Air Force aircraft to accomplish test and training requirements. R-2211 and its Blair Lakes Impact Area are managed by the Air Force. The general description and use of these areas are described in Chapter [2.0](#) and Appendix D, *Airspace Management*.

The current representative use of the Eielson MOA/ATCAA; R-2202 A, B, C, and D; and R-2211 reflect the general aircraft types, sortie-operations, and flight training activities that would occur in the future under the Alternative A and B proposals. R-2202 and R-2211 are used for both routine training and MFEs, and the Eielson MOA is normally used in conjunction with both restricted areas for maneuvering airspace.

Aircraft normally fly standard published routes (“STEREO ROUTES”) when transiting between Eielson AFB and these ranges. R-2202 is a tactical range containing several impact areas and numerous target types on Army-controlled land where both live and inert munitions are permitted. Routine training air-to-ground weapons deliveries normally only occurs in R-2202B while MFEs use the entire R-2202 complex (A, B, C, and D). R-2211 is a manned Air Force training range containing simulated targets where only inert munitions are used.

Other Military Airspace Uses

Use of the MTRs, LATN areas, and ARs is not expected to change significantly under either the Alternative A or B proposals. Therefore, they are not discussed any further under this proposal.

CIVIL AVIATION AIRSPACE USE

The same types of general aviation activities discussed in Section [3.1.1.1](#) can occur within the areas encompassed by both the Alternative A and B proposals. Those airspace uses within the affected region of these airspace proposals are described in the following sections.

Federal Airways

Those Federal airways transiting near the Eielson MOA and two restricted areas include V444/T232, V515, V481/T226/B25, and V438/T227. FAA data on the average daily use of these routes are noted in Section [3.1.1](#). The airways are not currently affected by military operations due primarily to their location relative to the existing SUA and the coordination currently in effect between the FAA and military agencies to minimize any impacts.

Jet and RNAV Routes

Several jet and RNAV routes transit near the affected airspace of these alternatives. Included are J167, which transits east of R-2202 C and D; J502-515, transiting north of the Eielson ATCAA, R-2211, and R-2202 C and D; and Q43, transiting west of R-2211. FAA data on the daily average use of these routes are noted in Section [3.1.1](#). These routes are not currently affected by military operations due primarily to their distance from R-2202 and those standing coordination procedures used by the FAA and military agencies to minimize any impacts.

VFR Air Traffic

The recreational, hunting, mining, and other flight activities discussed in Section [3.1.1](#) may exist to a lesser extent in this more-distant area where the restricted areas and government-controlled lands may limit the areas where those flights can occur. As noted previously, the number of VFR aircraft flights conducted throughout this region is unknown, although the airport operations data shown in Appendix D, *Airspace Management*, Table D-5, provide some measure of the flights conducted in this area. The Richardson and Alaska Highways commonly used by VFR air traffic through this region are east of the existing and proposed airspace associated with both alternatives.

Those VFR pilots having a need to operate within the areas encompassed by the existing and proposed airspace can obtain information on their scheduled and real-time use via those available sources discussed in Section [3.1.1.1](#).

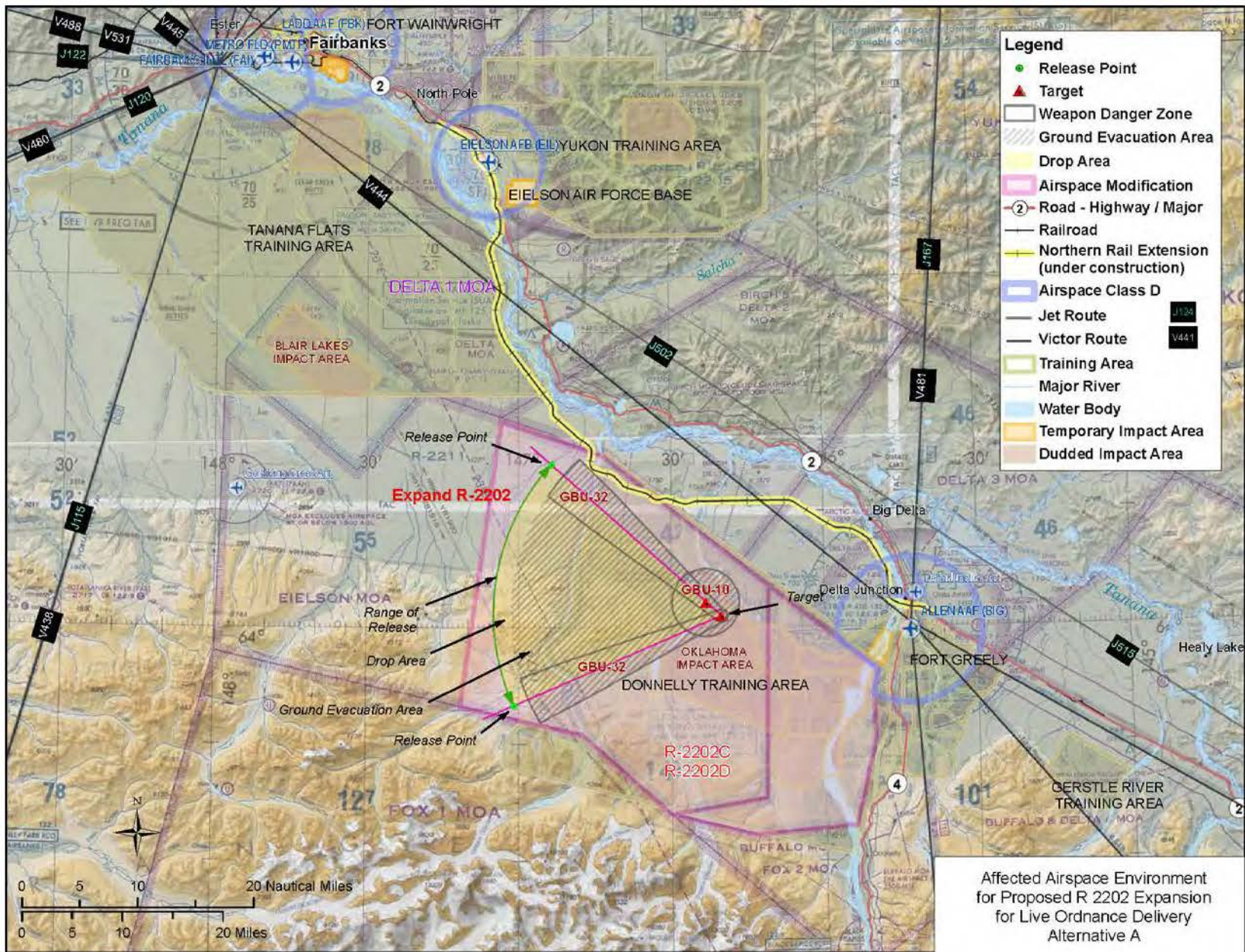


Figure 3-16. Affected Airspace Environment for Proposed R-2202 Expansion for Live Ordnance Delivery – Alternative A

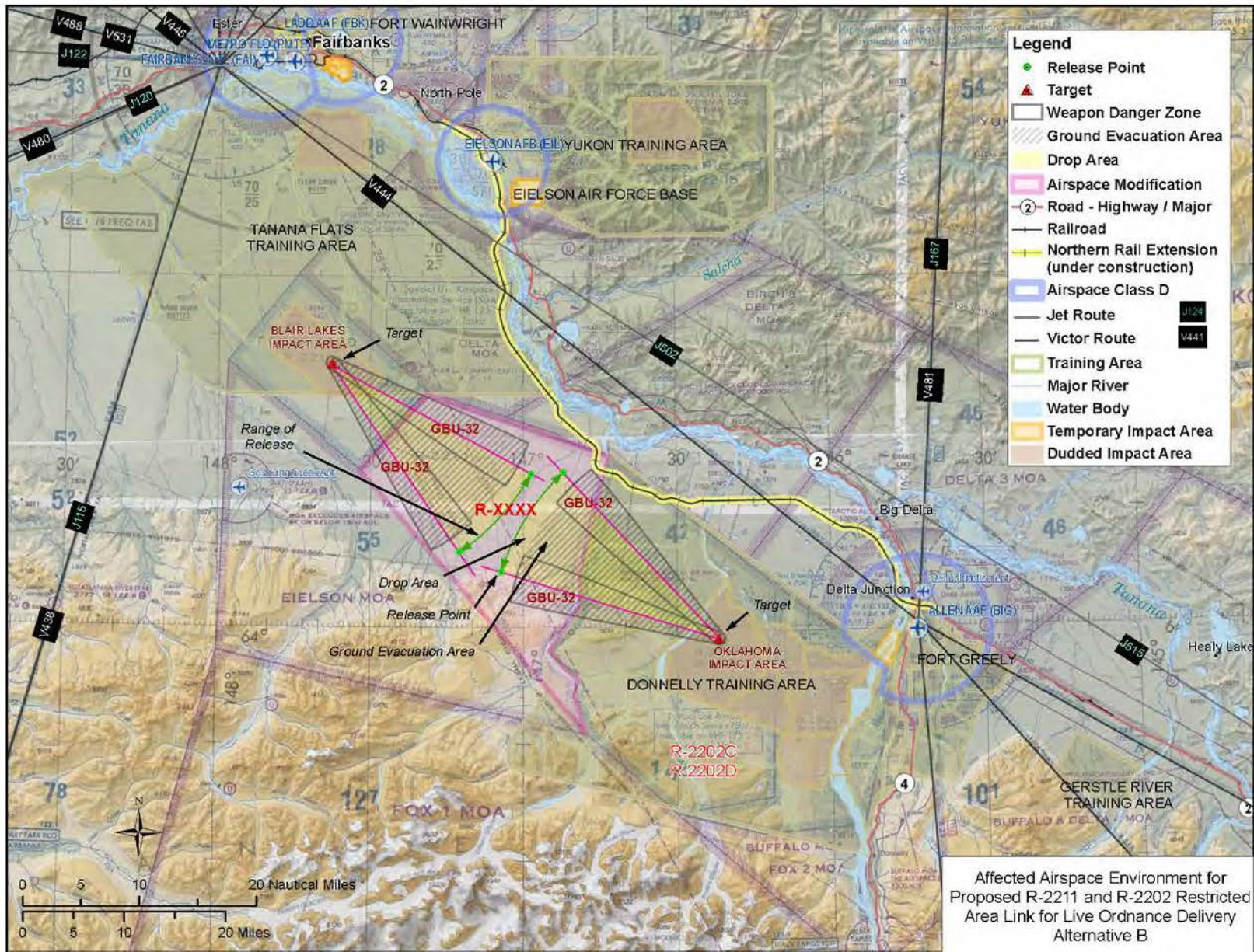


Figure 3-17. Affected Airspace Environment for Proposed Restricted Area Linking R-2211 and R-2202 for Live and Inert Ordnance Delivery – Alternative B

Public Airports and Chartered Private Airfields

Appendix D, *Airspace Management*, Table D-5, describes and depicts those public airports and chartered private airfields within the ROI. The public airports within the vicinity of the Alternative A and B proposed airspace include Fairbanks International, Gold King Creek, Black Rapids, and Delta Junction. The chartered private airfields along the Alaska Highway closest to this airspace include Scotts, Arctic Angel, Delta Daves, Rocking T, and All West. There are minimal effects on these airfields in the existing restricted airspace environment.

3.2.1.2 Impact Assessment Methodology

The methodology described in Section [3.1.1.2](#) was used to assess impacts of this proposed action and alternatives within this specific affected environment.

3.2.1.3 Environmental Consequences

3.2.1.3.1 Alternative A (Preferred Alternative)

The potential consequences of this proposal are as discussed below.

MILITARY AIRSPACE USE

Proposed Restricted Area Use

Use of R-2202B/C/D is not projected to increase significantly above current representative levels under this proposal since live ordnance deliveries would be conducted by those fighter aircraft types currently conducting other ordnance deliveries on this range. The proposed expansion of this restricted area would only be activated as needed to support the live deliveries with the greater protective airspace and ground safety footprints required for these deliveries. The scheduled and real-time status of this restricted airspace would be available on the SUAIS and other previously discussed information sources.

CIVIL AVIATION AIRSPACE USE

The extent to which this Alternative may impact civil aviation airspace use in the region of the expanded R-2202 would be minimal as described below.

Federal Airways

Two Federal airways (V444 and V481) transit adjacent to the R-2202 complex with both being sufficiently distant and separated from this proposed airspace to be impacted. The FAA has noted that this active airspace may impact those arrival/departure gates used by Anchorage ARTCC and Fairbanks TRACON to route and transfer control of air traffic to/from the Fairbanks and Anchorage airports. This would be examined during the aeronautical study of this proposal to ensure airway traffic and Fairbanks arriving/departing aircraft are not impacted.

Jet/RNAV Routes

Two jet routes (J167 and J502/515) are located adjacent to the R-2202 complex but are sufficiently distant from this airspace to not be impacted by this proposed expansion. However, as noted above, there may be some impacts on those arrival/departure points used by ATC to transfer route traffic to/from Fairbanks and Anchorage airports. This potential impact would be examined as part of the aeronautical study of this proposal.

VFR Air Traffic

The Birch, Richardson Highway, and Alaska Highway VFR flyways provide a means for VFR aircraft to transit to the north and east of R-2202 while remaining clear of military aircraft. The area proposed for the R-2202 expansion and its periodic use for high altitude live ordnance deliveries would have no direct impacts on these flyways. For those VFR flights having a need to operate within the Eielson MOA west of R-2202 may be impacted to a minimal extent when this airspace is activated. There should not be any increased interactions with military aircraft in this region than currently experienced since there would be no increase in military flights. As noted previously, those pilots having a need to operate within this area would be able to obtain the scheduled and real-time status of its use via the SUAIS and other available advisory services for planning their flights through this airspace. This may result in a flight delay or diversion around this active airspace.

Public Airports and Private Airfields

No public airports or private airfields are located within the immediate area of the proposed R-2202 expansion and others are sufficiently distant from this proposal so as not to be directly impacted. Any VFR pilots operating from those airfields and within the affected area may have to either delay their flight plans or alter their routes, as necessary, to avoid this restricted airspace when active.

3.2.1.3.2 Alternative B

Alternative B would link Restricted Areas R-2202 and R-2211 with restricted airspace for the high altitude live ordnance deliveries which may have adverse effects on other uses of this airspace when active as discussed below.

MILITARY AIRSPACE USE

Proposed Restricted Area Use

This alternative would provide greater latitude for ordnance deliveries in both of the linked restricted areas. Projected use of either restricted area would not increase above current representative levels by the aircraft using their respective target impact areas. When activated, this airspace would restrict other uses of the Eielson MOA not associated with the live ordnance delivery missions. Therefore, the planned use of this airspace would require coordination among the other using agencies to schedule and prioritize their respective mission requirements for this SUA.

CIVIL AVIATION AIRSPACE USE

Restricted airspace linking the existing restricted areas would not permit civil aviation use of this airspace when activated for live ordnance deliveries, as discussed below.

Federal Airways

No Federal airways transit through the proposed restricted airspace and there would be minimal or no impacts on the V444 and V481 airways. While this alternative would not affect the airway traffic, as noted for Alternative A, its active use may impact use of the Fairbanks Airport's arrival and departure gates used for routing and transferring ATC control of airport arrivals/departures. The extent of this impact and mitigation measures to be considered would be further examined by the FAA and the Air Force during the FAA's aeronautical study if this alternative is selected in the Record of Decision for inclusion in the aeronautical proposal.

Jet/RNAV Routes

Three jet routes (J115, J167 and J502-515) transit adjacent to R-2211 and R-2202 with none being sufficiently close to this proposed airspace to be impacted. However, as noted previously, this proposal could impact that airspace and those points used by ATC to transfer control of airport arriving and departing air traffic between the Anchorage ARTCC and Fairbanks TRACON. This impact would be further examined by the FAA and the Air Force as part of the FAA's aeronautical study if this alternative is selected in the Record of Decision for inclusion in the aeronautical proposal.

VFR Air Traffic

Current uses of the Birch, Richardson Highway, and Alaska Highway VFR flyways would not be impacted by this proposal. However, when this restricted area link is active, it would prohibit use of the existing Eielson MOA airspace that may be currently used by those VFR flights having a need to transit through that airspace. This airspace restriction may have significant impacts on those VFR flights that would experience long delays or diversions when this restricted area is active. The SUAIS or other advisory services would need to be used during preflight planning to obtain the scheduled and real-time status of this restricted airspace.

Public Airports and Private Airfields

No public airports or private airfields are located within the area proposed for the R-2202 expansion and most others are sufficiently distant from this expansion so as not to be impacted by this proposal. One public airfield, Gold King Creek, is located within about 10–15 NM of the southern boundary of this proposed restricted area and any operations from this airfield having a need to travel east/northeast of R-2211 may be impacted by the active restricted airspace. As noted above, any VFR flights operating from this airfield through this area may have to either delay their flights or alter their routes, as necessary, to avoid this restricted airspace when active.

3.2.1.3.3 No Action Alternative

The No Action Alternative would not result in any change from existing conditions to the military and civil uses of this airspace environment.

3.2.1.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse impacts on civil aviation. The Air Force will continue to implement existing procedures and use of the SUAIS to inform pilots about training periods and closures. The Air Force will also incorporate any measures or adjustments to the proposals pending the FAA's final review and approval.

3.2.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.2.2.1 Affected Environment

Implementation of RLOD proposed actions would potentially affect noise levels at and near the Oklahoma and Blair Lakes Impact Areas. The Oklahoma and Blair Lakes Impact Areas are currently used for training with a wide variety of munitions ([Table 3-26](#)). Time-averaged noise levels exceeding 62 dB CDNL generated by munitions usage in these two impact areas do not extend beyond range boundaries ([Figure 3-18](#)). Peak noise levels associated with a moderate likelihood of complaints

(exceeding 115 dB PK15[met]) do occur in certain off-range locations to the north of DTA but these noise levels are generated at DTA impact areas other than the Oklahoma Impact Area. Noise levels with a high likelihood of triggering noise complaints (exceeding 130 dB PK15[met]) do not occur at any off-range location (Figure 3-19). Military operations in this area include aircraft training as well as ground unit training. When military training is not under way, the sound environment is dominated by natural sounds.

Table 3-26. Air-to-Ground Large Munitions Used at Donnelly Training Area and Blair Lakes Impact Area Under Baseline Conditions

Munitions Type	Donnelly Training Area/R-2202	Blair Lakes Impact Area/ R-2211
20 mm (inert)	3,388	0
20 mm (high-explosive incendiary)	9,788	0
25 mm (high-explosive incendiary)	4,788	0
30 mm (high-explosive incendiary)	22,063	0
30 mm (inert)	0	25,090
Inert bombs	1,184	451
250-pound class bombs (live) (e.g., Small Diameter Bomb)	200	0
500-pound class bombs (live) (e.g., GBU-12, GBU-38, MK-82)	357	0
1,000 pound class bombs (live) (e.g., GBU-32, MK-83)	195	0
2,000-pound class bombs (live) (e.g., GBU-31, MK-84)	65	0
2.75-inch rocket (high-explosive)	244	0
2.75-inch rocket (inert)	99	248
AGM-65 missile (high-explosive)	60	0
AGM-65 missile (inert)	26	0
.50 caliber	0	26,050
7.62 mm	0	176,800

Key: AGM=air-to-ground missile; GBU=Guided Bomb Unit; MK=mark; mm=millimeter.

Source: Air Force 2011-1, CHPPM 2011.

3.2.2.2 Impact Assessment Methodology

Noise levels associated with proposed live-ordnance delivery were assessed using the program BNOISE2 (Blast Noise Impact Assessment for Artillery and Explosives) version 1.2.2003-07-03, which was developed by the Army (Hottman et al. 1986). The model was run using digital data on terrain elevation to account for effects of topography on the spreading of noise. The primary metric used to assess noise impacts associated with firing of large weapons is CDNL, which relates to public annoyance in the manner described in Table 3-7. Single-event unweighted peak noise level exceeded by 15 percent of events, denoted as “PK 15(met),” were also assessed. Noise impacts would be considered significant if noise levels exceeding 130 dB PK 15(met) or 62 dB CDNL were to impact areas not owned by the DoD and that were not already affected by these noise levels under baseline conditions.

3.2.2.3 Environmental Consequences

3.2.2.3.1 Alternative A (Preferred Alternative)

Under Alternative A, the western boundary of R-2202 would shift to the west accommodate weapon danger zones (WDZs) associated with realistic delivery profiles. The number of sortie-operations

conducted in R-2202 would not be expected to change, and aircraft noise levels would remain approximately the same as under baseline conditions. Supersonic weapons delivery would be conducted by F-22 aircraft at altitudes of 40,000 to 50,000 feet MSL (see [Table 2-4](#)). Supersonic flying is currently conducted in R-2202 and would also be permitted at altitudes above 30,000 MSL in the expanded R-2202. Sonic booms generated at these altitudes generally do not reach the ground due to atmospheric refraction and when they do intersect the ground are attenuated by the long distances travelled. The number of live Guided Bomb Unit-32 (GBU-32) (1,000-pound-class-bombs) dropped per year would be expected to increase from 70 to 200 while the number of Small Diameter Bombs (SDBs) dropped annually would remain the same as under baseline conditions. Time-averaged noise level (CDNL) contours calculated based on the proposed number of munitions dropped annually are shown in [Figure 3-18](#). Noise levels exceeding 62 dB CDNL would not extend beyond the boundaries of DoD-owned land. Baseline PK 15(met), as shown in [Figure 3-19](#), would not change, as only the number, not the type, of munitions dropped would change. The incremental increase in the frequency of live GBU-32 detonations could be noticed by persons living off-range and could potentially result in increased annoyance. Detonation of 1,000-pound-class munitions, such as the GBU-32, at the targets in the Oklahoma Impact Area result in approximately 114 dB PK 15(met) at the nearest range boundary, which is about 10 statute miles away. Several types of high-explosive munitions, including GBU-32, are used in the Oklahoma Impact Area under baseline conditions. The proposed increase from 70 to 200 GBU-32 munitions deployed per year under the RLOD proposal may be noticed and could potentially result in increased annoyance. However, the proposed incremental increase in munitions use at the geographically remote Oklahoma Impact Area would not result in noise impacts that would exceed significance thresholds established for this action.

3.2.2.3.2 Alternative B

Alternative B contains all of the elements of Alternative A but would also include establishing a new restricted area to allow realistic munitions drops in both the Oklahoma and Blair Lakes Impact Areas. Only inert bombs would be dropped at Blair Lakes Impact Area under RLOD. Inert munitions generate noise on impact that is noticeable only in the immediate vicinity of the impact location. Noise impacts in the Blair Lakes Impact Area under Alternative B would be minimal, and munitions usage and noise impacts in the Oklahoma Impact Area would be the same as under Alternative A. Impacts do not exceed the significance thresholds established for this action.

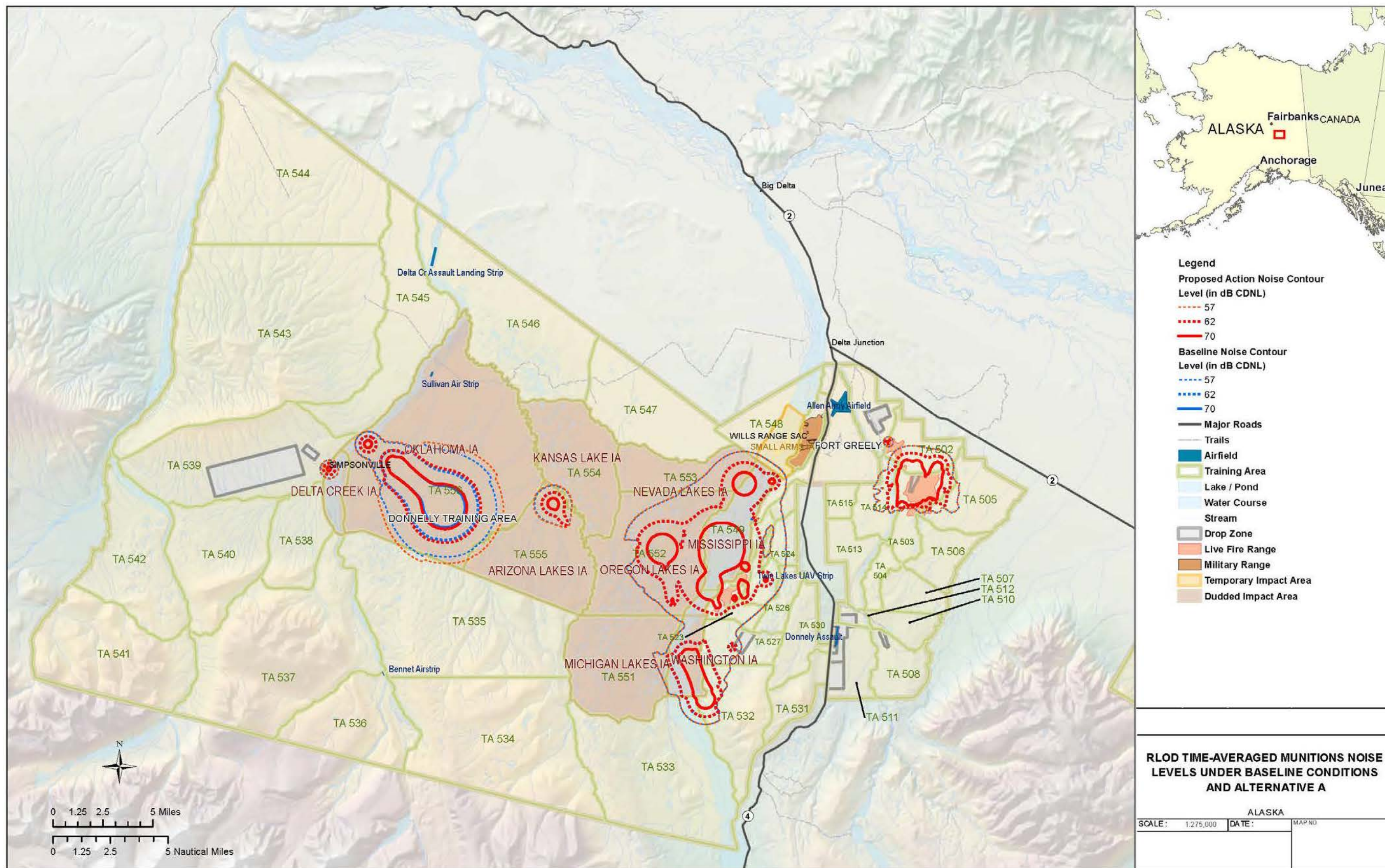


Figure 3-18. Realistic Live Ordnance Delivery Time-Averaged Munitions Under Baseline Conditions and Alternative A

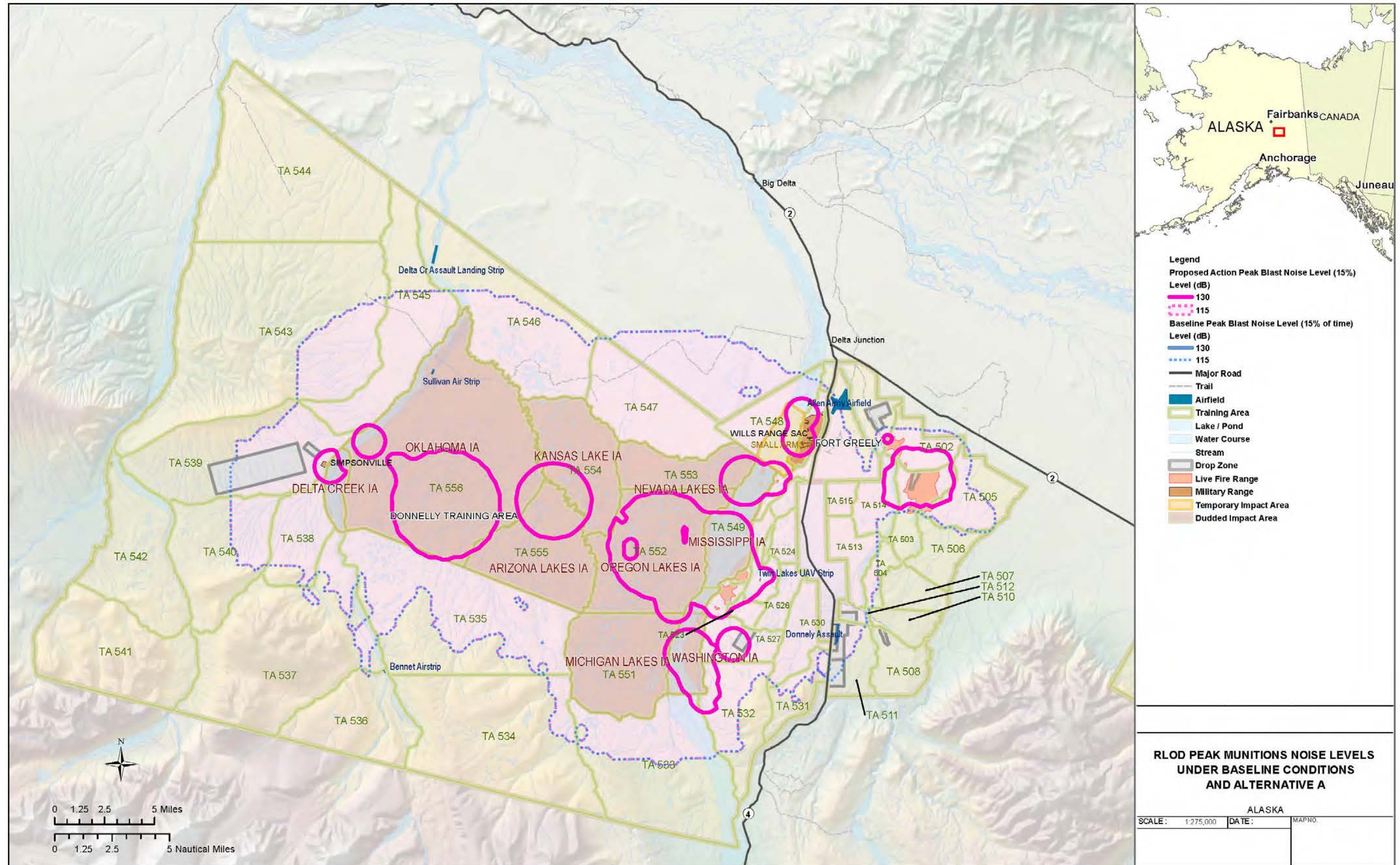


Figure 3-19. Realistic Live Ordnance Delivery Peak Munitions Noise Levels Under Baseline Conditions and Alternative A

3.2.2.3.3 No Action Alternative

Under the No Action Alternative, restricted area airspace extents would remain as they are currently, and no changes to munitions usage would occur. There would be no change from existing conditions for noise under the No Action Alternative.

3.2.2.4 Mitigations

No mitigations are identified for this resource.

3.2.3 Safety

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.3.

3.2.3.1 Affected Environment

FLIGHT SAFETY

The types of flight safety risks and conditions that would exist within the restricted airspace proposed for the two live-ordnance delivery alternatives and those measures implemented to help prevent mishaps, near misses, midair collisions, and bird/wildlife-aircraft strikes are generally the same as those present in the other SUA in this region that are addressed in Section [3.1.3.1](#).

GROUND SAFETY

The proposed action is to establish a realistic air and ground training environment that would accommodate live and inert ordnance delivery. The following issues related to the affected environment for ground safety are discussed: Range Safety and Control, Unexploded Ordnance and Munitions Safety, Public Access Control, and Fires and Emergency Response.

Range Safety and Control – Range safety and control is the responsibility of Army range management personnel. As previously stated, all training activities must be coordinated in advance with Army range scheduling and safety personnel. During training activities, the using unit will clear the affected training area (and overlying airspace) to ensure that unauthorized personnel, vehicles, or aircraft are not in the affected area during training. If any unauthorized personnel, vehicles, or aircraft are detected, the training activity is temporarily halted until the area is cleared and secured.

In order to define area to be evacuated during live-fire training activities, range safety personnel establish appropriate WDZs. These WDZs are established in accordance with AR 385-63, *Range Safety* (Army 2003), for munitions and laser systems.

The methodology for establishing WDZs combines munitions system science, computer modeling and BMPs. WDZs are developed considering several factors: weapon maximum range capability, blast fragmentation distances, blast overpressure levels, and flight termination system effects (if a weapon is so equipped). WDZs for ballistic weapons (e.g., gravity bombs, rockets, bullets) include safety zones for initial impacts as well as ricochets. These safety zones may be derived by using either empirical data or computer models to simulate a large sample of impact points, thereby allowing statistical methods to define the weapon safety footprint.

In addition to impacts from standard munitions, laser systems and RF defense threat emitters employed on the range may also pose hazards.

The primary hazard associated with laser use is eye damage. This damage can vary from small burns, undetectable by the injured person, to severe impairment. Laser target areas are typically used for laser ground-to-ground and air-to-ground firing. The Stuart Creek Impact Area in R-2205, as well as R-2202 and R-2211 may be used for routine laser training. Laser-guided munitions, both air and ground ammunition and platforms, do not have an internal active laser source; rather, the munition has a sensor that detects a target that has been “painted” with light from a laser target designation device. The designation device is usually operated by a third party; it is typically not located on the munition or on the weapons delivery platform. Range procedures and safety precautions associated laser training are described in USARAK 350-2, *Range Safety* (USARAK 2011). These may include the use of WDZs and personal protection equipment, such as safety glasses.

Hazards of RF exposure are primarily associated with heating of tissue (often referred to as “thermal” effects). High levels of RF radiation can be harmful due to the ability of RF energy to heat biological tissue rapidly. Tissue damage in humans could occur during exposure to high RF levels because of the body’s inability to cope with or dissipate the excessive heat that could be generated. The extent of this heating would depend on several factors including radiation frequency; size, shape, and orientation of the exposed object; duration of exposure; environmental conditions; and efficiency of heat dissipation. At relatively low levels of exposure to RF radiation, i.e., field intensities lower than those that would produce significant and measurable heating, the evidence for production of harmful biological effects is ambiguous and unproven (Federal Communications Commission [FCC], 1999).

Procedures associated with RF training would include safety and awareness training and the implementation of personnel safety exclusion zones around transmitter sites. Additionally, areas where the potential exists for RF exposures to exceed exposure limits would also be clearly marked with appropriate signs. Safety procedures associated with RF training are contained in Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Standard 48-9, *Electro-magnetic Frequency Radiation Occupational Health Program*.

Unexploded Ordnance and Munitions Safety – Ammunition items and explosives that have been used (i.e., armed, fired, dropped, or launched) but fail to operate or detonate as intended (i.e., malfunction) are referred to as “unexploded ordnance” (UXO). These UXOs pose a safety hazard to military personnel and the general public. UXO is potentially present on all past and present (active) impact areas. As a result, access to these areas is strictly controlled. Note: These UXO buffer zones do not necessarily resemble the operational WDZs. Impact areas maintain posted warning signs of the potential risks due to UXO.

Management of UXO plays a crucial role in creating and maintaining a safe training environment, and that process inevitably involves the prompt removal of all ordnance residue from active training areas. As documented in USARAK 350-2, portions of the TFTA and DTA impact areas authorized for training are surface-cleared of UXO or duds (i.e., nonfunctioning ammunition) before access is permitted (USARAK 2011). Clearing typically involves rendering the munition safe on the range or removing it for proper disposal. Cleared areas that become contaminated during live-fire exercises/training are cleared when the exercise is completed. Any ammunition higher than .50 caliber found either along the boundary of or outside an impact area is reported to range safety personnel for evaluation by the 716th Explosive Ordnance Detachment. The R-2205 impact area is periodically scheduled for retargeting and UXO clearance. In addition, upon completion of live-fire training exercises throughout the training area, prepared positions, barriers, and training apparatus are removed (USARAK 2011).

Public Access Control – In many of the training areas there is no fencing to delineate installation boundaries; therefore, there is potential for unauthorized public access onto military property. All recreation activities must be conducted in accordance with applicable rules and regulations (USARAK

2006-2). All personnel requesting recreational access must obtain a Recreation Access Permit, which provides conditional authorization to enter Army training lands.

Prior to entering TFTA or DTA lands, Recreation Access Permit holders must log-in to the Army Recreational Tracking System (USARTRAK) to ascertain which training areas are available for recreational use (USARAK 2006-2). USARTRAK also employs an automated check-in phone system, which allows the public to access information regarding daily closures on the range. Additionally, areas prohibited to the public are marked by placard, blockade, verbal warning, red flag, or other means of communication.

While procedures are in place to allow authorized public access to portions of TFTA and DTA lands, unauthorized access (i.e., illegal entry/trespass) does occur. Crossing the installation boundary or internal boundary of an off-limits area without approval constitutes trespass. Because the training area boundary is not fenced, some trespass is accidental. Unauthorized individuals/trespassers risk bodily injury or death, property damage, or contamination from training or nontraining events, particularly from UXO and ordnance fragments.

Fire and Emergency Response – Munition items used during training pose a fire risk; incendiary devices and lightning are the two major causes of fires within the training areas (USARAK 2007-2). Various practices are in place within the training areas to minimize the potential for these fires. Existing procedures include the use and monitoring of the fire weather index. The fire weather index is based on the Canadian Forest Fire Danger Rating System. Four fire weather index rating categories apply: extreme, high, moderate and low. Monitoring of the fire weather index alerts range safety personnel to conditions where limitation of certain types of munitions are applicable (i.e., the use of pyrotechnics, smoke pots, and grenades may be restricted when fire danger level is high). The Integrated Wildland Fire Management Plan (created by then-named U.S. Army Garrison-Alaska [USAGAK], but which is now the U.S. Army Garrison Fort Wainwright, Alaska [USAG-FWA]) and AR 350-2 provide details on the restricted Air Force and Army activities within each fire weather index rating category.

Weather stations are located at Bolio Lake and Donnelly DZ in DTA and Blair Lakes in the TFTA. In addition to monitoring the fire weather index and modifying planned training activities accordingly, other prevention measures are used, such as establishing nontraining buffers within 0.5 miles of training areas adjacent to non-military land to protect the surrounding areas. The nontraining buffers would be established on military lands. Prescribed burns and mechanical thinning are routinely planned for the training areas.

The Alaska Fire Service is primarily responsible for fire suppression in TFTA and DTA (USARAK 2007-2). However, wildfire suppression is conducted by the BLM, the Alaska Fire Service, and/or the military fire department. Suppression operations are dependent on the wildland fire management category status of the respective area. Fire planning within the training areas is guided by practices of the Integrated Wildland Fire Management Plan and management practices for each training area by Alaska Wildland Fire Management Plan priorities: critical, full, modified, and limited. TFTA is classified as limited for wildland fire management because relatively few resources are at risk from fire (USARAK 2007-2). Both natural and human-caused fires occur in TFTA.

Most of DTA-West is classified for limited fire management; DTA-East, however, is classified for full fire management due to the close proximity of Delta Junction and other communities and the cantonment area (USARAK 2007-2).

3.2.3.2 Impact Assessment Methodology

FLIGHT SAFETY

The impact assessment methodology discussed in Section [3.1.3.2](#) is applicable for the assessment of any potential flight safety impacts of this proposal.

GROUND SAFETY

Impacts on ground safety were assessed by evaluating the relative scope and location of proposed activities associated with each of the project alternatives (as described in Chapter [2.0](#)) and their potential to alter the existing conditions. No new studies or modeling were conducted in support of these analyses. Instead, the analyses were based on assessments of existing information and key findings from other representative ground safety studies.

The impact analyses considered the potential impacts on ground safety of each of the alternatives within the context of existing and proposed standard operating procedures (SOPs) for avoidance of accidents. An activity that resulted in the exceedance of one or more baseline criteria was deemed to have a significant impact. For a significant impact, a determination was then made as to whether the impact could be mitigated—i.e., reduced to a less-than-significant level.

Impacts on ground safety are evaluated for the following:

- Damage, injury, or death from ordnance use during training (ordnance releases or UXO) or from the employment of training equipment such as lasers or RF transmitters.
- Impacts on the safety of the public from unauthorized access or on surrounding communities from training-related wildfires.

3.2.3.3 Environmental Consequences

3.2.3.3.1 Alternative A (Preferred Alternative)

FLIGHT SAFETY

The overall potential for any flight safety risks under this alternative would be low to moderate. Aircraft sortie-operations and the overall number of flying hours within the existing and proposed airspace would not increase significantly above current representative levels, therefore, the potential risk for increased aircraft mishaps, bird-aircraft strikes or near misses/midair collisions should also not increase. The area covered by the R-2202 western extension has little or no human population; therefore, the effects of any aircraft mishap in this area, while still serious, would not put anyone inhabiting this region at great risk. Activation of the expanded restricted airspace and the limits it would place on nonparticipating aircraft, as discussed in Section [3.2.1](#), would reduce the potential for near misses/midair collisions within this active airspace. The higher-altitude flights that would normally be flown for live-ordnance deliveries within the expanded airspace would be above those altitudes at which bird activity and aircraft strikes would normally occur. Therefore, the potential for bird/wildlife-aircraft strikes would be the same as it is at those lower altitudes currently flown within the existing airspace. The flight safety programs and emergency response capabilities currently in place for preventing mishaps, near misses/midair collisions, and bird strikes would be SOPs for this proposed airspace.

GROUND SAFETY

Range Safety and Control – Existing procedures for range safety and control would continue to be implemented for proposed training activities in the Oklahoma Impact Area, as well as within land areas

underlying the proposed expanded R-2202 airspace. These procedures would include coordinating all training activities with range safety personnel, as well as closing range gates and trails and surveying the target areas prior to training to ensure that nonauthorized vehicles/personnel are not present. Current WDZs would be expanded to include land areas underlying the expanded R-2202 as needed. The specific geographic boundaries associated with WDZs would vary depending on the ordnance utilized. These would be developed using procedures previously discussed. [Figure 3-20](#) presents WDZs associated with use of a GBU-32 or a GBU-10. For areas outside of the military land boundary, the Air Force would develop a Range Safety and Access Plan following the ROD for managing and ensuring public safety on non-military land. The plan would include details about timing and duration of limited access, public notifications, and roles and responsibilities for implementation of the plan.

In addition to impacts from standard munitions, laser systems and RF defense threat emitters employed on the range may also pose hazards. Range procedures and safety precautions associated laser training are described in USARAK 350-2, *Range Safety* (USARAK 2011), and may include the use of surface danger zones (SDZs) and personal protective equipment, such as safety glasses. Procedures associated with RF training would include safety and awareness training and the implementation of personnel safety exclusion zones around transmitter sites. Additionally, areas where the potential exists for RF exposures to exceed exposure limits would also be clearly marked with appropriate signs.

Unexploded Ordnance and Munitions Safety – As required, training areas would be cleared of UXO or munitions debris to reduce related hazards and provide a safe and constructive training environment for all training units. Any cleared areas that become contaminated during live-fire exercises/training would again be cleared when the exercise is completed. In addition, upon completion of live-fire training exercises, prepared positions, barriers, and ammunition residue would be removed.

Public Access Control – Current procedures designed to limit unauthorized public access would continue. These procedures include marking prohibited areas with placards, blockades, verbal warnings, or red flags as appropriate. Additionally, the following measures would be implemented to minimize unauthorized access:

- At least 2 weeks prior to a major training exercise, post a public notice throughout the Delta Junction community and have it published in all local media sources, such as the Fairbanks Daily News-Miner. The notice would indicate which range would be used, as well as the duration of the exercise/range closure.
- Establish new signage and increase law enforcement monitoring for the new temporary target areas. This would help prevent illegal access that may pose a hazard to human health and safety.
- Make available to the public range bulletins that include range maps with impact area borders, discussion of area closures, and information on the dangers of dudded ammunition and other UXO.
- Continue to implement the USARTRAK automated check-in phone system. This would provide information regarding daily closures and should greatly simplify the public access process.

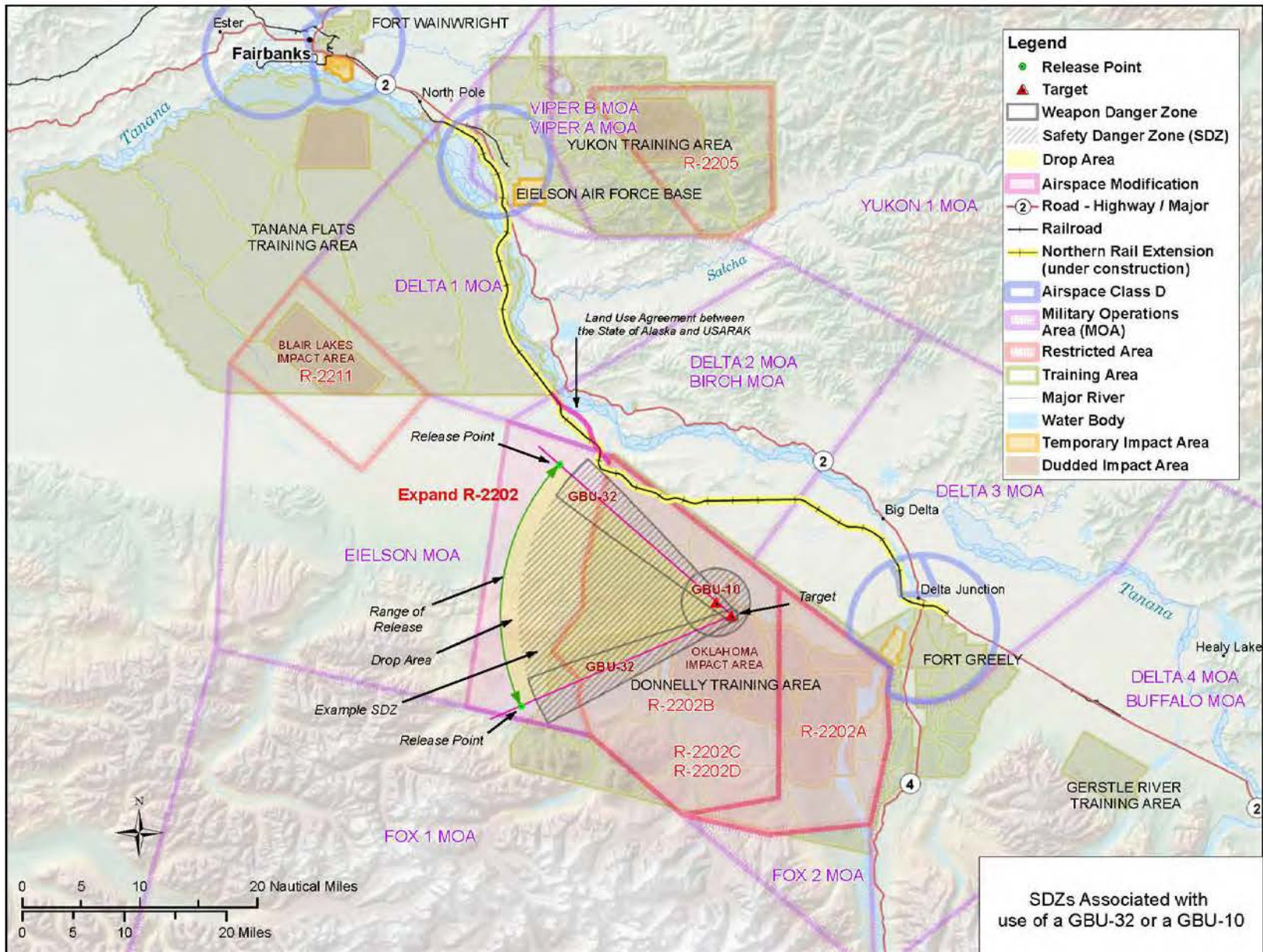


Figure 3-20. Surface Danger Zones Associated with Use of a GBU-32 or a GBU-10

Fire and Emergency Response – The Integrated Wildland Fire Management Plan would be updated to address training activities under Alternative A. All fire management and response practices currently employed would continue. These include monitoring the fire weather index and modifying planned training activities accordingly, establishing nontraining buffers within 0.5 miles of training areas to protect the surrounding areas, and conducting prescribed burns and mechanical thinning in training areas. Additionally, the following standard measures would be implemented:

- Continue use of firefighting materials and equipment by all units on ranges or training areas during high and extreme fire risk index rating periods. These firefighting tools would include but are not limited to pulaskis, beaters, and portable water extinguishers.
- Limit the use of certain ammunition and pyrotechnics during periods of elevated fire risk indices.

Implementation of the above listed measures would minimize the potential for significant adverse impacts on the military and the general public.

3.2.3.3.2 Alternative B

FLIGHT SAFETY

The overall potential for any flight safety risks under this alternative would be low to moderate. The restricted area proposed under this alternative would link R-2211 and R-2202 for conducting the types of live ordnance delivery missions described for Alternative A. The probability of any flight safety risks within this airspace, when active, would be relatively low, as discussed for the Alternative A proposal. Aircraft sortie-operations and the overall number of flying hours within the existing and proposed airspace would not increase significantly above current representative levels, therefore, the potential risk for increased aircraft mishaps should also not increase. During the time periods that this airspace would be used for ordnance deliveries, nonparticipating aircraft would not be permitted to enter this restricted area; therefore, there should be no risk of any near misses or mid-air collisions with other aircraft while these operations are in progress. Most of the delivery profiles would be flown at higher altitudes that would be well above those altitudes where most bird activity normally exists; therefore, the potential for bird/wildlife-aircraft strikes during these operations should be negligible. As stated previously, flight safety programs and emergency response capabilities already exist to help prevent and, if necessary, respond to any incidents/accidents that may occur under any circumstances.

GROUND SAFETY

Range Safety and Control – Existing procedures for range safety and control, as described under Alternative A, would be implemented for proposed activities in the existing targets at the Oklahoma and Blair Lakes Impact Areas, as well as within land areas underlying the proposed expanded R-2211 and R-2202 airspaces. There are no aspects of Alternative B associated with range safety and control not previously discussed under Alternative A. Consequently, significant impacts are not expected to occur.

Unexploded Ordnance and Munitions Safety – Existing procedures for UXO and munitions safety, as described under Alternative A, would be implemented for the proposed activities. There are no aspects of Alternative B associated with UXO and munitions safety not previously discussed under Alternative A. Consequently, significant impacts are not expected to occur.

Public Access Control – Current and proposed procedures designed to limit unauthorized public access would continue. There are no aspects of Alternative B associated with public access control not previously discussed under Alternative A. Consequently, significant impacts are not expected to occur.

Fire and Emergency Response – The Integrated Wildland Fire Management Plan would be updated to address training activities and new impact areas proposed under Alternative B, while all fire management and response practices currently employed or proposed under Alternative A would be implemented. There are no aspects of Alternative B associated with fire and emergency response not previously discussed under Alternative A. Consequently, significant impacts are not expected to occur.

3.2.3.3.3 No Action Alternative

FLIGHT SAFETY

The No Action Alternative would involve maintaining the current use of this airspace as well as those plans, procedures, and processes in place for minimizing flight safety risks within the existing airspace.

GROUND SAFETY

No change in ground operations would occur under the No Action Alternative; therefore, there would be no additional changes to existing conditions on public health and safety.

3.2.3.4 Mitigations

FLIGHT SAFETY

Flight safety mitigation measures within the affected airspace are the same as those discussed in Sections [3.1.1.4](#), Airspace Management and Use, and [3.1.3.4](#), Flight Safety, that address the measures and flight safety plans, programs, and procedures that have been implemented by the Air Force to address flight safety risks during all flight activities.

No mitigations are identified for flight safety.

GROUND SAFETY

Ground safety mitigation measures associated with Range Safety and Control, Unexploded Ordnance and Munitions Safety, Public Access Control, and Fire and Emergency Response would be the same as those discussed in Section [3.2.3.3.1](#). Existing plans and procedures associated with all aspects of ground safety would continue to be implemented.

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. The following mitigation is proposed to reduce these impacts.

- **ADNR Compliance Items.** The Air Force will provide support to ADNR throughout the Special Use Designation process. The Air Force will develop a Concept of Operations (CONOPS) and an Access and Safety Plan for the exclusive use of State land to support RLOD. The Special Use Designation process will identify areas and dates of closure and will have to indicate which activities are affected. The Access Plan will provide the maximum public use to the ground evacuation areas, closing such areas for the minimum period of time necessary to conduct such operations. The Access Plan (updated annually) will identify areas and dates of closure and will indicate which activities are affected. It will describe roles and responsibilities for securing the area, ensuring it is evacuated, publishing and posting closure notices, signs, and other media to advertise and alert public of the hazards, times, and locations.

3.2.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.2.4.1 Affected Environment

The proposed area that will be used to accommodate RLOD activities is within Valdez-Cordova Census Area, Alaska, which is in attainment of all NAAQS. Table B-12 in Appendix B, Section B.4.3 provides a summary of the estimated 2008 annual emissions for Valdez-Cordova Census Area.

3.2.4.2 Impact Assessment Methodology

The project air quality analysis evaluated the changes in operational emissions that would occur from the proposed RLOD. There are no proposed construction activities related to the RLOD action. All aircraft operations that would occur in the affected area under Alternative A will be above 3,000 feet. Thus, there are no ground-level impacts to air quality from aircraft operations.

Some limited ground-level maintenance and operational activities are needed to support the targets, including maintenance to the road and the use of small generators for lighting and communications. The emissions from these potential sources are not expected to differ significantly from existing conditions and thus were not analyzed.

The main change in emissions associated with the RLOD action would result from increased ordnance expenditures. Since the project region for this proposed action is in attainment of all NAAQS and EPA's General Conformity rule does not apply, the analysis used the PSD new major source threshold of 250 tons per year of each pollutant as an indicator of significance or nonsignificance of projected air quality impacts.

PSD CLASS I AREA IMPACT ANALYSIS

The PSD Class I area of concern for this proposed action is Denali National Park, which is approximately 60 miles from the closest proposed RLOD training areas. Potential impacts that would occur due to the RLOD activities are discussed below.

3.2.4.3 Environmental Consequences

3.2.4.3.1 Alternative A (Preferred Alternative)

CONSTRUCTION

There would be no significant construction activities associated with Alternative A for the RLOD action, as existing targets in the Oklahoma Impact Area would be used for the training activities under this alternative.

OPERATIONS

No changes will occur to aircraft operations in the affected area under Alternative A of this action. Thus, no analysis was performed on the air quality effects of aircraft operations in the region. The increase in ordnance usage would not be expected to cause a significant increase in maintenance activities. Therefore, the changes in emissions from maintenance activities would be considered negligible and were not analyzed.

Alternative A for the RLOD would result in an increase in GBU-32 expenditures in R-2202, which would result in an increase in criteria pollutant and HAP emissions. [Table 3-27](#) presents estimates of the changes in annual operational criteria pollutant emissions that would result from the increase in ordnance expenditures associated with Alternative A. The data in [Table 3-27](#) show that the increases in criteria pollutant emissions from Alternative A would not exceed their applicable PSD significance thresholds of

250 tons per year. Therefore, the criteria pollutant emissions that would be produced from the operations of the RLOD under Alternative A would result in less-than-significant air quality impacts. Given that the project region is in attainment of all NAAQS, a conformity determination is not necessary. Details of the munitions usage data and emission factors used to estimate emissions from Alternative A are included in Tables F-8 and F-9 of Appendix F, *Air Quality*, of this EIS. Table F-10 of Appendix F shows the change in emissions in the affected area from Alternative A.

Combustive emissions from the utilization of munitions in R-2202 would contain HAPs that could potentially impact public health. The low level of criteria pollutant emissions that would result from Alternative A provides a good indication that the HAP emissions are quite minimal. It is expected that significant impacts on public health would not occur from HAPs emitted in association with increased munitions utilization under Alternative A, as the intermittent nature of these sources and the isolated geographic regions of proposed operations would produce minimal impacts in a populated area.

**Table 3-27. Change in Annual Operational Emissions
Resulting from Implementation of Alternative A**

Restricted Area	Change in Criteria Pollutant Emissions (tons per year)					
	VOCs	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}
R-2202	0.06	4.59	0.00	--	0.01	0.00
Significance thresholds	250	250	250	250	250	250

Key: CO=carbon monoxide; NO_x=nitrogen oxide; PM_{2.5}=particulate matter 2.5 microns or less in diameter; PM₁₀=particulate matter 10 microns or less in diameter; SO₂=sulfur dioxide; VOCs=volatile organic compounds.

IMPACTS ON DENALI NATIONAL PARK

As the increases in emissions resulting from RLOD Alternative A would be minimal, the impacts on air quality-related values at Denali National Park would be expected to be negligible.

3.2.4.3.2 Alternative B

CONSTRUCTION

Similar to Alternative A, there would be no significant construction activities associated with Alternative B of the RLOD action.

OPERATIONS

Similar to Alternative A, all aircraft operations that would occur in the affected area under Alternative B will be above 3,000 feet. Thus, there would be no change in air quality impacts due to aircraft operations under Alternative B, and there would be no ground-level air quality impacts. The increase in ordnance usage is not expected to cause a significant increase in maintenance activities. Therefore, the change in emissions from maintenance activities would be considered negligible and was not analyzed.

Alternative B would result in an increase in GBU-32 expenditures in R-2202 and R-2211, which would result in an increase in criteria pollutant and HAP emissions. [Table 3-28](#) presents an estimate of the change in annual operational criteria pollutant emissions that would occur from the increase in ordnance expenditures associated with Alternative B for the RLOD action. The data in [Table 3-28](#) show that the increases in criteria pollutant emissions from increased munitions expenditures at R-2202 and R-2211 would not exceed their applicable PSD significance thresholds of 250 tons per year. Therefore, the criteria pollutant emissions that would be produced from the operations of the RLOD under Alternative B would result in less-than-significant air quality impacts. Given that the project region is in attainment of all NAAQS, a conformity determination is not necessary. Details of the munitions usage data and

emission factors used to estimate emissions from Alternative B of the proposed action are included in Tables F-8 and F-9 of Appendix F, *Air Quality*, of this EIS. Table F-11 of Appendix F shows the change in emissions in the affected area from Alternative B.

HAP emissions from the proposed utilization of munitions in R-2202 and R-2211 under Alternative B would not be expected to result in significant impacts on public health, as the intermittent nature of these sources and the isolated geographic regions of proposed operations would produce minimal impacts in a populated area.

**Table 3-28. Change in Annual Operational Emissions
 Resulting from Implementation of Alternative B**

Restricted Area	Change in Criteria Pollutant Emissions (tons per year)					
	VOCs	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}
R-2202	0.03	2.30	0.00	--	0.00	0.00
R-2211	0.03	2.30	0.00	--	0.00	0.00
Total change in emissions	0.06	4.59	0.00	0.00	0.01	0.00
Significance thresholds	250	250	250	250	250	250

Key: CO=carbon monoxide; NO_x=nitrogen oxide; PM_{2.5}=particulate matter 2.5 microns or less in diameter; PM₁₀=particulate matter 10 microns or less in diameter; SO₂=sulfur dioxide; VOCs=volatile organic compounds.

IMPACTS ON DENALI NATIONAL PARK

As the increase in emissions resulting from RLOD Alternative B would be minimal, the impacts from proposed emissions under this alternative on air quality-related values at Denali National Park would be expected to be negligible.

3.2.4.3.3 No Action Alternative

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at R-2202 and R-2211. Therefore, the No Action Alternative would not result in any new air quality changes from existing conditions.

3.2.4.4 Mitigations

Since the impacts from all alternatives are expected to be insignificant, no actions to reduce air quality impacts are being proposed.

3.2.5 Physical Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5.

3.2.5.1 Affected Environment

Alternative A would use existing target arrays at the Oklahoma Impact Area, located in the north-central portion of DTA. Soils in the portion of DTA-West where the Oklahoma Impact Area is located are categorized as silt loam associations. Soils located in river floodplains consist of alternating layers of sand, silt loam, and gravelly sand; soils in boggy areas are very organic and wet and are close to the high water table. Upland soils are moist and loamy, as compared with mountainous soils, which are rocky, nonvegetated, and steep. Soils in lowlands generally have low wind and water erosion potential; soils at foothills and higher elevations have greater erosion potential (USARAK 2004-1). More detailed

characteristics of representative soils in DTA and the Oklahoma Impact Area are provided in Section [3.9.5.1](#).

Permafrost conditions within the Oklahoma Impact Area are irregular, particularly in areas where there are rapid elevation transitions. Permafrost tends to occur in DTA on north-facing slopes and valley bottoms, but is absent on south-facing slopes, in coarse-grained sediments, and in areas of groundwater movement (U.S. Army Corps of Engineers [USACE] 2001). A large portion of DTA contains discontinuous permafrost, but areas below existing and abandoned river channels, lakes, wetlands, and other low-lying areas are likely free of permafrost.

Alternative B would also use the existing targets in the Oklahoma Impact Area, in addition to the Blair Lakes Impact Area, which lies to the west of the Blair Lakes in the south-central portion of TFTA. Soil characteristics at Oklahoma Impact Area would be the same as those described for Alternative A. Soils in the Blair Lakes Impact Area are predominantly categorized as glaciofluvial outwash, and are composed of residual fine-grained soils deposited by past flooding events. Sediments range from sandy silts to clay materials. Coarser-grained sediments on the upper alluvial fans are generally more well-drained than the fine-grained sediments found in lower alluvial fan areas (USACE 1999). More-detailed characteristics of representative soils in the Blair Lakes Impact Area are provided in Section [3.8.5.1](#).

Permafrost conditions in the Oklahoma Impact Area are the same as described for Alternative A. Permafrost conditions on Blair Lakes Impact Area are dependent upon soil conditions and local topography, but much of the impact areas are located in an area described as having nearly continuous permafrost (USACE 1999). The active permafrost layer can be found at only 1 foot below the surface in some places, but can extend to 23 to 50 feet in others. The majority of TFTA is experiencing widespread permafrost degradation (estimated at over 40 percent of the total land area), which is expressed on the surface as various thermokarst features (USACE 1999).

3.2.5.2 Impact Assessment Methodology

This section analyzes and compares the soil and permafrost impacts associated with each proposed action. Soil conditions in Alaska demonstrate great diversity due to regional and local variations in climate, topography, parent material composition, and the presence (or lack) of permafrost. Soils are able to support a given use based largely upon their defining characteristics, but are sometimes unsuitable for other uses and, as a result, impacts will differ in type and severity according to location and local conditions. Due to wide variations of soil type and prevalent conditions, impact severity can vary greatly, even when considering rather small areas. Any disturbance of permafrost is typically irreversible, can be highly problematic, and can lead to thermokarsting. There are currently substantial restrictions on activities in many areas that may affect permafrost. As a result, any action-related disturbance of permafrost is considered significant.

3.2.5.3 Environmental Consequences

This section analyzes the potential impacts on physical resources (including soils and permafrost) associated with ground-based aspects of the proposed action. Baseline conditions in areas potentially affected by the proposed action were addressed in Section [3.2.5.1](#).

3.2.5.3.1 Alternative A (Preferred Alternative)

The proposed action would include the use of existing and new, live and inert targets in DTA, with land underlying existing airspace used as a hazard area. With respect to existing targets, the proposed action would result in an annual increase in ordnance use on Oklahoma Impact Area of 200 SDBs and 200 Joint Direct Attack Munitions (JDAMs) (GBU-32), fired from F-22s. The increased use of ordnance would

potentially result in an increase in soil erosion; however, soils on flat areas of DTA and the Oklahoma Impact Area are typically not susceptible to wind or water erosion (USDA 2005). In addition, the proposed additional use of ordnance represents a fraction of total yearly munitions use, such that no beneficial or adverse soil erosion impacts would occur.

This proposal also includes the use of proposed new temporary target areas in DTA Training Area (TA) 544, for inert GBU-32 ordnance delivery south from JBER, and DTA TA 533, for inert GBU-32 ordnance delivery north from Eielson AFB. The proposed new targets in TAs 544 and 533 would be classified as temporary impact areas. Creation of new targets could result in short- and long-term soil erosion, as well as degradation of permafrost, including thermokarst features; therefore, there is potential for significant adverse impacts to occur. Components of metals found in the munitions proposed for use have the potential for dissolution and mobilization in soils with pH values less than 5.5, specifically those in permafrost areas. However, the presence of the relatively impermeable permafrost below such areas would prevent excessive mobility of any dissolved metals. The potential for mobility of residual metals is further discussed in Section [3.2.6.3](#).

Pre-planning for siting of new targets and infrastructure or new activities at ranges or on training areas requires coordination between the (Air Force/proponent/user) and the USARAK Installation Range Office (IRO). The USARAK IRO and USAG-FWA Environmental Division review the range user's proposal and work directly with the (Air Force/proponent/user) to select a location suitable for the proposed purpose, while also considering a range of environmental, operations, and land use constraints. These considerations, as well as information from the Installation Training Area Management (ITAM), Range and Training Land Assessment (RTLTA), and Land Rehabilitation and Maintenance (LRAM) programs would factor into site selection and specific restrictions or BMPs that the proponent must agree to follow. This includes periodic or post-activity assessments, restorative actions, and site clean-up.

3.2.5.3.2 Alternative B

Under this alternative, live ordnance delivery would be conducted on existing targets in the Oklahoma and only inert ordnance in the Blair Lakes Impact Area. Impacts would be similar to those described for Alternative A. No beneficial or adverse soil erosion impacts in excess of baseline conditions would occur.

3.2.5.3.3 No Action Alternative

Under the No Action Alternative, there would be no change to current activities at Blair Lakes Impact Area or the Oklahoma Impact Area and conditions would remain as described in Section [3.2.5.1](#).

3.2.5.4 Mitigations

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. The following mitigation is proposed to reduce these impacts.

- **Continued compliance with Army regulations on R-2202.** All applicable conservation, monitoring, and management procedures currently followed by USAG-FWA in the management of R-2202 will be applicable to the proposed action, including measures for the protection of soils and permafrost, including but not limited to, the Fort Wainwright Integrated Natural Resources Management Plan (INRMP) and Storm Water Pollution Prevention Plan (SWPPP) and the monitoring guidelines of the ITAM Sustainable Range Awareness.

3.2.6 Water Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6.

3.2.6.1 Affected Environment

Alternative A would be conducted using the existing target array at the Oklahoma Impact Area. The existing (fiscal year 2010) munitions usage in the Oklahoma Impact Area is provided in [Table 3-26](#). The Oklahoma Impact Area is located in the center of DTA between Delta Creek and One-Hundred-Mile Creek and up to the confluence of these two waterways. Delta Creek and One-Hundred-Mile Creek drain into the Tanana River. Delta Creek originates from meltwater from the Trident and Hayes Glacier and has extensive sections of abandoned floodplain terraces above the current active braided floodplain. One-Hundred-Mile Creek is a clear water stream originating the foothills of the Alaska Range. Along the east side of One-Hundred-Mile Creek are numerous kettle ponds, which are shallow water bodies formed by retreating glaciers. Large quantities of groundwater are available from the alluvial fan deposits and floodplain deposits in this area. Existing target arrays lay along abandoned floodplain terraces on the west side of Delta Creek. Based on sampling of impact areas in DTA in 2001 and 2002, the explosive residues are at very low concentrations (parts per billion) over most of the impact areas. However, where ordnance failed to detonate, the underlying soil can have locally high parts-per-million concentrations of explosive residue (USACE 2004). Explosive residue can move to the surface water by erosion of the floodplain terrace. Wetland coverage in the Oklahoma Impact Area is 86 percent.

Alternative B would be conducted using the existing targets at the Blair Lakes Impact Area and the Oklahoma Impact Area. The Blair Lakes Impact Area lies to the west of the Blair Lakes in the south-central portion of TFTA and includes portions of the headwaters of Willow Creek and Clear Creek. Willow Creek and Clear Creek flow into the Tanana River. There is substantial surface and groundwater flow in the area, with small streams forming a dense network of nearly straight channels. Thermokarstic topography dominated by organic fens and bogs is common (USACE 1999). Typical thermokarstic landforms consist of uneven marshy hollows and small hummocks, which form in permafrost areas as ice thaws. Wetland coverage in the Blair Lakes Impact Area is 85 percent.

In both Alternatives A and B, new targets would be established in northwest DTA in TA 544 and southeast DTA in TA 533. These new targets would not be located within an existing impact area. It would only involve the use of inert GBU-32 ordnance. The new target in TA 544 would be located in the Little Delta River watershed. The new target in TA 533 would be located in the Delta River watershed.

3.2.6.2 Impact Assessment Methodology

Impacts on water resources were categorized by considering the size and location of activities associated with each of the alternatives (as described in Chapter [2.0](#)) and their potential to alter the quality, quantity, or beneficial uses of existing resources (described in Appendix B, Section B.6). No new modeling was conducted in support of these analyses. Instead, the analyses were based on assessments of existing information and key findings from other representative studies and maps that addressed water resources as related to potential impacts associated with the project alternatives.

Evaluation criteria (standards for evaluating the severity of impacts) were developed, and the effects of the proposed project were then assigned significance according to these criteria. Adverse impacts are defined as serious consequences for water quality and quantity, floodplains, and wetlands that could result in (1) degradation of the quality of surface water or groundwater, resulting in noncompliance with applicable Federal water quality standards, laws, and regulations, and/or regional standards, laws, and

regulations as appropriate; (2) increased risks to housing, structures, or humans from activity within the 100-year floodplain; (3) impairment of long-term water supplies for JPARC and surrounding communities; and (4) disturbance, degradation, or loss of wetlands or other aquatic features.

The following categories were used to define potential impacts:

- Beneficial impact.
- No beneficial or adverse impacts are expected to occur.
- Potential for adverse impacts that would have measureable but not significant impacts on water quality, stream flow, floodplains, and/or wetlands. No water quality standards would be exceeded; construction may occur within floodplains, but stream flow would not be impeded or channelized; and wetlands impacts could include compaction of wetland soil, disturbance of vegetation, and reduced vegetation but not severe wetland degradation. Proposed actions may require management actions or mitigations to avoid or reduce impacts.
- Potential for significant adverse impacts and would include exceedances of water quality standards, construction in the floodplains that impede or channelize flow, and/or permanent degradation of wetland vegetation and soils. Proposed actions would require management actions or mitigations to avoid or reduce impacts.

The first three qualitative impact categories (none, minor, and moderate) are considered insignificant in this analysis. The next category (severe) is considered significant. Mitigation measures have been developed to offset adverse impacts.

3.2.6.3 Environmental Consequences

3.2.6.3.1 Alternative A (Preferred Alternative)

Alternative A would result in an annual increase in ordnance use on the Oklahoma Impact Area of 200 SDBs and 200 JDAMs (GBU-32) fired from F-22s. Under Alternative A impacts would be limited to the existing target arrays that currently undergo live-fire practice. Water quality could be impacted by the metals and explosive fillers used in the ordnance. Iron, manganese, copper, molybdenum, lead, nickel and zinc are found in shell and various projectile components of the GBU-32 and SDBs. Soil samples from various training areas in DTA were collected and analyzed in 2001 and 2002 for metal concentrations. Low levels of zinc, copper, lead, and antimony were detected within impact areas and target berms where munitions were used. The metal concentrations were above the background but no samples in DTA had values approaching levels of concern (USACE 2004). The primarily sandy and gravelly soils in the areas sampled in DTA have neutral pH values of 6 to 7.8 and should not be conducive to dissolution and mobilization of metals deposited from munitions components. Metals such as lead can more readily dissolve and mobilize in acidic soils where pH is below 5.5. Soils in permafrost areas with black spruce and sphagnum moss cover are often acidic and have pH levels of 4.0 to 5.0, although the shallow active layer and impermeable underlying permafrost limit mobility of any dissolved metals. Preliminary data from water quality monitoring indicate that metals from munitions residues are not moving out the impact areas through surface water, ground water, windblown soils, or wildlife (USARAK 2006-2). The increase in ordnance use is not expected to raise levels of metal concentrations to levels of concern; therefore, water quality impacts from metals deposited in the environment by exploded ordnance would be potentially adverse but not significant (USARAK 2006-1).

Low order detonation or UXO also have the potential to impact surface water quality. The explosive filler left over in duds and low order detonations can be mobilized through dissolution in water. The explosive fillers typically include trinitrotoluene (TNT), Royal Demolition Explosive (RDX), and/or High Melting Explosive (HMX). The GBU-32 and SDBs do not contain white phosphorus. White phosphorus has adverse and potentially lethal impacts to waterfowl, as documented in the Eagle River Flats impact area at Fort Richardson.

Soil sampling at Delta Creek Impact Area in 2001 and 2002 found locally high concentrations of TNT around UXO, but no detection of explosive fillers upstream or downstream of the site (USACE 2004). Delta Creek Impact Area is not part of Alternative A, but the existing use is similar to Alternative A (500- to 2,000-pound ordnance delivered from aircraft) (USACE 2004). In general, 3.8 percent of bombs delivered by the Air Force become either a dud or low order detonation (Shaw et al. 2001). In the most conservative case, assuming all ordnance dropped are live ordnance and applying this failure rate to Alternative A, up to eight of the GBU-32s and eight SDBs delivered to the Oklahoma Impact Area could become duds or low order detonations per year. In this most conservative case, it would result in an increase of 1,800 kg (4,000 pounds) of unexploded explosive filler deposited near the target areas and high-hazard impact area per year. Explosive contaminants could be adsorbed to humus or by clay minerals, biotransform by microorganisms or by uptake in the roots of plants, which would reduce the local concentration in the soil. However, preliminary data from water quality monitoring indicates that munitions residues are not moving out the impact areas through surface water, ground water, windblown soils, or wildlife (USARAK 2006-2). Therefore, impacts on surface water and groundwater downstream of the target arrays would be potentially adverse but not significant.

Ordnance used in the RLOD training explodes on or near the ground, forming a crater. Using the expected increase in ordnance and assuming a crater radius for each munitions type (Shaw et al. 2001), the approximate increase in the annual cratered surface area is estimated to be approximately 12.6 acres (5.1 ha). A study of craters in the nearby Washington Impact Area in DTA found that craters provide a depression that captures windblown leaves, silt, and organic particulates including seeds as well as capturing more snow and serving as a moisture source for plants (Shaw et al. 2001). Craters were colonized by balsam poplars after 4 years. Given the resiliency of the ecosystem in response to cratering and the slight increase in sedimentation compared to base sediment loads, impacts under Alternative A on sedimentation and surface water quality would be potentially adverse but not significant.

Wetlands at or near the target arrays could also be impacted by cratering. The Oklahoma Impact Area is covered by approximately 86 percent wetlands. Available wetland data are limited and wetland occurrence is not uniform or homogenous. Using the available data by applying the approximate percent wetland cover to the annual cratered surface area, it is estimated up to 10.7 acres (4.3 ha) of wetlands could be impacted per year. The explosion would likely disturb wetland vegetation, but would not result in a net loss of wetlands. The depressions created by the craters in the nearby Washington Impact Area were moisture sinks that were colonized by small saplings within 4 years (Shaw et al. 2001). Therefore, any net loss in wetland acreage would be minimal and potential impacts to wetlands would be adverse, but not significant.

New targets for inert GBU-32 ordnance would be located in the DTA in TAs 544 and 533. Inert GBU-32 ordnance consist of metal casing, concrete fill, a transmitter, and a battery pack. Preliminary data from water quality monitoring indicates that metals from munitions residues are not moving out of the impact areas through surface water, ground water, windblown soils, or wildlife (USARAK 2006-2). Therefore, impacts on surface water and groundwater downstream of the target arrays would be minimal and not

significant. The inert ordnance would not create significant craters; therefore impacts to wetlands would be minimal and not significant.

3.2.6.3.2 Alternative B

The Blair Lakes Impact Area is designated as a nondudded range and only inert ordnance would be used. [Table 3-29](#) compares the quantity of metallic residue generated from proposed RLOD Alternative B training activities to quantities generated in 2010 (Baseline). In addition, there is the potential for inert munitions-related contamination of surface water and groundwater as a result of chemical residue within spotting charges, flares, etc. However as discussed in Alternative A, preliminary data from water quality monitoring indicate that munitions residues are not moving out the impact areas through surface water, ground water, windblown soils, or wildlife (USARAK 2006-2). Therefore, impacts on surface water and groundwater downstream of the target arrays would be potentially adverse but not significant. The inert ordnance would not create significant craters that could impact wetlands, therefore, impacts to wetlands would be minimal and not significant. The impacts on the Oklahoma Impact Area and new targets in TA 544 and TA 533 in the DTA would be the same as described in Alternative A.

3.2.6.3.3 No Action Alternative

There would be no change to water quality in association with munitions use under current existing conditions and no additional changes would occur in association with munitions use.

3.2.6.4 Mitigations

Impacts on surface water quality, groundwater quality, and wetlands would be potentially adverse but not significant. The following mitigation is proposed to reduce these impacts.

- **Continued compliance with Army regulations on R-2202.** All applicable conservation, monitoring, and management procedures currently followed by USAG-FWA in the management of R-2202 will be applicable to the proposed action, including measures for the protection of soils and permafrost, including but not limited to, the Fort Wainwright INRMP and SWPPP and the monitoring guidelines of the ITAM Sustainable Range Awareness.

3.2.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.2.7.1 Affected Environment

The Oklahoma Impact Area in R-2202B of DTA is included as part of Alternatives A and B in the RLOD proposed action. Both live-fire high-explosive and inert ordnance are used in the Oklahoma Impact Area during aerial bombing exercises. This area is classified as a dudded impact area.

The Blair Lakes Impact Area in R-2211 of TFTA, which is included as part of Alternative B, is currently used by the Air Force for non-live-fire bombing exercises and is classified as a nondudded impact area.

MUNITIONS-RELATED RESIDUE

The Air Force and Army currently conduct a number of training missions in the Oklahoma and Blair Lakes Impact Areas that generate munitions-related residue. In general, munitions-related residue sources include practice bombs, expended artillery, small arms and mortar projectiles, bombs and missiles,

rockets and rocket motors, grenades, incendiary devices, experimental items, demolition devices, and any other material fired on or upon a military range. More specific to the Oklahoma and Blair Lakes Impact Areas, munitions-related residue sources would include GBU-32 and SDB-type ordnance.

Munitions that fail to detonate properly (duds) and munitions that only partially detonate (low-order detonations) can result in the deposition of munitions residues (explosives and metals) at impact sites. Duds and low-order detonations have the potential to create environmental contamination by the leaching of explosive filler into soil, sediment, surface water, and groundwater.

The expenditure of live ammunition or detonations has the potential to release hazardous chemicals or other elements, such as heavy metals, into the environment. The existing condition is considered to be the baseline levels released into the environment from current training and testing missions in the Oklahoma and Blair Lakes Impact Areas ([Table 3-29](#)).

Table 3-29. Oklahoma and Blair Lakes Baseline Munitions-Related Residue

Chemical	2010 Quantity at Oklahoma Impact Area in R-2202 B (Baseline) (pounds)	2010 Quantity at Blair Lakes Impact Area in R-2211 (Baseline) (pounds)
Antimony	0	0
Chromium	573	0
Cobalt	106	0
Copper	21,284	0
Lead	603	0
Manganese	6,217	0
Nickel	305	0
Vanadium	25	0

Source: EPA 2011.

In addition, there is the potential for inert munitions-related contamination of surface water and groundwater as a result of chemical residue within spotting charges, flares, etc., which would provide a route for migration of the explosives residues across military installation boundaries.

CONTAMINATED SITES

There are no active hazardous and/or petroleum waste sites located within either impact area listed in the ADEC contaminated sites database.

3.2.7.2 Impact Assessment Methodology

The methodology for evaluating general hazardous materials and waste is described in Section [3.1.7.2](#).

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

The analysis methodology involved in estimating ordnance-related chemical releases and evaluating the potential impact of these releases to specific media (i.e., soil, water, air, and biological resources), including reporting requirements, are discussed for each of the proposed action areas.

Chemical releases to the environment from metallic residue resulting from the use of munitions were based on the type and quantity of ordnance associated with range operations, combined with chemical

composition data obtained from the Toxic Release Inventory–Data Delivery System (TRI-DDS). The TRI-DDS database, which is a product of the Joint Service Emergency Planning and Community Right-to-Know Act (EPCRA) Workgroup, is intended to provide a consistent method for assessing chemical constituent data that may be used by DoD installations when reporting chemical releases and waste management practices.

Appendix J, *Hazardous Materials*, lists the ordnance items and quantities that are projected to be used as part of range operations for each of the proposed actions. Where detailed information regarding the munitions item (e.g., the specific DoD Identification Code [DODIC]) was available, TRI-DDS characterization data for that item were employed. In cases where only the item type was available, characterization data for a similar munitions item (a surrogate) were utilized. Appendix J also includes a description of the ordnance item used in the analyses (obtained from the TRI-DDS) and the associated DODIC.

Releases to the environment from munitions used in training require reporting to EPA under the EPCRA Toxic Release Inventory (TRI) program. Training is subject to a TRI reporting threshold of 10,000 pounds per year for most common chemicals, with lower reporting thresholds for chemicals classified as persistent, bioaccumulative, and toxic. These chemicals include mercury, with a reporting threshold of 10 pounds, and lead, with a threshold of 100 pounds. In cases when a threshold is exceeded, the installation must report to EPA on a “Form R” the quantity of munitions-related waste released to the environment or recovered and recycled.

JPARC operations areas have procedures to comply with TRI reporting requirements and would track ordnance use associated with the proposed alternatives. This could require new procedures if proposed training activities were to result in the exceedance of reporting thresholds for any new chemicals.

3.2.7.3 Environmental Consequences

3.2.7.3.1 Alternative A (Preferred Alternative)

GENERAL HAZARDOUS MATERIALS AND WASTE

This alternative would involve the expansion of the boundaries of R-2202 to the west, to allow for the larger footprint of GBU-32 and SDB ordnance. There would be no construction, refueling or maintenance conducted within the restricted area footprint. This alternative would utilize the existing target array in the Oklahoma Impact Area. By utilizing the existing road network within R-2202, no new road construction would be necessary. This proposal also includes the use of proposed new target areas in DTA TA 544, for inert GBU-32 ordnance delivery south from JBER, and DTA TA 533, for inert GBU-32 ordnance delivery north from Eielson AFB. The proposed new targets in TAs 544 and 533 would be classified as temporary impact areas. There would be no refueling or maintenance conducted in the restricted area footprint.

Pre-planning for siting of new targets and infrastructure or new activities at ranges or on training areas requires coordination between the (Air Force/proponent/user) and the USARAK IRO. The USARAK IRO and USAG-FWA Environmental Division review the range user’s proposal and work directly with the (Air Force/proponent/user) to select a location suitable for the proposed purpose, while also considering a range of environmental, operations, and land use constraints. These considerations, as well as information from the ITAM, RTLA, and LRAM programs would factor into site selection and specific restrictions or BMPs that the proponent must agree to follow. This includes periodic or post-activity

assessments, restorative actions, and site clean-up. Therefore, no beneficial or adverse general hazardous materials-related construction and operational impacts would occur in association with this alternative.

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

This alternative involves an increase in ordnance use, including 200 SDBs (250 pounds) and 200 JDAMs (1,000 pounds, GBU-32), fired from F-22s annually at target arrays in the Oklahoma Impact Area. Impacts associated with this proposed action would be limited to the existing target arrays that currently undergo live-fire practice. Soil and surface waters can be impacted by the metals and explosive fillers used in the ordnance. Iron, manganese, copper, molybdenum, lead, nickel and zinc are found in shell and various projectile components of the JDAMs. Soil samples from various training areas in DTA were collected and analyzed in 2001 and 2002 for metal concentrations. Low levels of zinc, copper, lead, and antimony were detected within impact areas and target berms where munitions were used. The metal concentrations were above the background but no samples in DTA had values approaching levels of concern (USACE 2004). The mainly sandy and gravelly soils in the areas sampled in DTA have neutral pH values of 6 to 7.8 and should not be conducive to dissolution and mobilization of metals deposited from munitions components. Metals, such as, lead can dissolve and mobilize in acidic soils where pH is below 5.5. Soils in permafrost areas with black spruce and sphagnum moss cover are often acidic and have pH levels of 4.0 to 5.0, although the shallow active layer and impermeable underlying permafrost limit mobility of any dissolved metals.

Low order detonation or UXO also creates the potential for impacts on soil and surface water quality. The explosive filler remaining in duds and low order detonations can be mobilized through the dissolution in water. The explosive fillers typically include TNT, RDX, and/or HMX. Soil sampling at Delta Creek Impact Area in 2001 and 2002 found locally high concentrations of TNT around UXO, but no detection of explosive fillers upstream or downstream of the site. Delta Creek Impact Area use is similar to the proposed action (500- to 2,000-pound ordnance from aircraft) (USACE 2004). In general, 3.8 percent of bombs delivered by the Air Force become either a dud or low order detonation (Shaw et al. 2001). Applying this failure rate to the proposed action, up to eight JDAMs and eight SDBs delivered to the Oklahoma Impact Area could become duds or low order detonations per year. In the most conservative case, this would result in 7,700 kg (17,000 pounds) of unexploded explosive filler deposited near the target areas and high-hazard impact area per year. Explosive contaminants can be adsorbed to humus or clay minerals, biotransform by microorganisms, or by uptake in the roots of plants, which would reduce the local concentration in the soil. In addition, preliminary data from water quality monitoring suggest that munitions residues are not moving out the impact areas through surface water, groundwater, windblown soils, or wildlife (USARAK 2006-2), thus reducing downstream impacts.

[Table 3-30](#) compares the quantity of metallic residue generated from proposed RLOD Alternative A training activities to quantities generated in 2010 (Baseline).

Table 3-30. Munitions-Related Residue from Realistic Live Ordnance Delivery Alternative A

Chemical	Estimated Quantity from Training (pounds)*	Ground Release Quantity at 2010 (Baseline) (pounds)*	Total Estimated Quantity (pounds)	Estimated Increase from Baseline (percentage)	EPCRA TRI Reporting Threshold (pounds)	New EPCRA TRI Reporting Required
Chromium	1,055	573	1,628	184	10,000	No
Cobalt	113	106	219	107	10,000	No
Copper	11,152	21,284	32,436	52	10,000	No
Lead	610	603	1,213	101	100	No
Manganese	6,631	6,217	12,848	107	10,000	No
Nickel	413	305	718	135	10,000	No
Vanadium	79	25	104	316	10,000	No

Key: EPCRA=Emergency Planning and Community Right-To-Know Act; TRI=Toxic Release Inventory.

* **Source:** TRI-DDS 2011.

As the table indicates, metallic releases would be expected to increase for each of the residual metals concentrations, in comparison to baseline quantities. As previously stated in Section 3.2.7.2, Impact Methodology, training is subject to an EPCRA TRI reporting threshold of pounds per year for most common chemicals, with a 100-pound reporting threshold for lead. USAG-FWA already submits a Form R report from on-going training activities for chromium, copper, lead, and manganese; therefore, proposed RLOD training activities would not require additional Form Rs to be submitted. Reporting would also not be required for other chemicals generated as part of training (i.e., cobalt, nickel, vanadium), because the quantities associated with these chemicals would be well below reporting thresholds.

Assessing the levels of explosives residues by sampling the soil and water has been a challenge because of the large size and varied terrain of these impact areas, the safety hazards associated with UXO, and on-going live-fire and nonlive-fire training. However, these impact areas would be managed in accordance with current Federal, State of Alaska, Air Force, and Army regulations for the management, safe handling, and disposal of hazardous waste and materials associated with live and inert ordnance and UXO, as the result of aerial bombing exercises at each impact area. Therefore, Alternative A would result in the potential for adverse but not significant impacts.

As previously discussed, this proposal also includes the use of proposed new target areas in DTA TA 544, for inert GBU-32 ordnance delivery south from JBER, and DTA TA 533, for inert GBU-32 ordnance delivery north from Eielson AFB. The proposed new targets in TAs 544 and 533 would be classified as temporary impact areas. There is no potential for adverse munitions-related hazardous materials impacts, as only inert ordnance delivery would be conducted.

3.2.7.3.2 Alternative B

GENERAL HAZARDOUS MATERIALS AND WASTE

This alternative would involve the creation of a new restricted area that would connect R-2211 and R-2202. There would be no refueling or maintenance conducted in the restricted area footprint. This alternative would utilize the existing target arrays in the Oklahoma and Blair Lakes Impact Areas and

create a new restricted area to allow for the larger footprint of GBU-32 and SDB ordnance. By utilizing the existing road network within R-2202, no new road construction would be necessary. Therefore, no beneficial or adverse general hazardous materials-related construction and operational impacts would occur in association with this alternative.

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

The impacts on the Oklahoma Impact Area would be the same as described in Alternative A. With respect to the Blair Lakes Impact Area in R-2211, as well as proposed new target areas in DTA TA 544 and DTA TA 533, there is no potential for adverse munitions related hazardous materials impacts, as only inert ordnance delivery would be conducted.

3.2.7.3.3 No Action Alternative

Under the No Action Alternative, there would be no expansion of the footprint, associated WDZ, and hazard areas for ordnance delivery or the use of ordnance requiring an expanded footprint. Therefore, no change or additional impacts to existing conditions would occur for hazardous materials and waste.

3.2.7.4 Mitigations

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. The mitigation proposed for physical resources (Section [3.2.5.4](#)) and water resources (Section [3.2.6.4](#)) would prevent impacts from munitions contamination.

3.2.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.2.8.1 Affected Environment

Under Alternatives A and B, the proposed actions would establish additional restricted area airspace from the surface to high altitudes (unlimited ceiling), allowing the use of long-distance standoff weapons fired at existing targets within existing impact areas. The overflight and weapons release activities allowed by the proposed airspace modifications would not have substantial impacts on vegetation or wildlife and, therefore, a complete biological resources analysis will not be conducted for these alternatives. The development of new target areas up to 2 acres in extent for inert ordnance delivery is described below.

3.2.8.2 Impact Assessment Methodology

The impact assessment for biological resources focuses on the establishment of new target areas.

3.2.8.3 Environmental Consequences

3.2.8.3.1 Alternative A (Preferred Alternative)

Under Alternative A, which includes the proposed establishment of new target areas outside the existing impact areas as part of the north-south ordnance delivery run-in headings, some potential exists for biological impacts at these new target sites. The target sites would be approximately 1 to 2 acres in extent and would be located within existing ordnance impact areas in DTA and TFTA. For north-south run-in headings, however, targets would be located within DTA-West, but outside of existing ordnance impact areas. Only inert ordnance would be used at these targets. Biological surveys have been conducted for

wetlands and raptor nests and no raptor nests were recorded in proposed target areas. Wetland areas were mapped and are further discussed in Water Resources (Section [3.2.6.4](#)). If adjustments for final siting of targets are made, they would be according to established procedures used by USARAK and the USAG-FWA Environmental Division, working with the Air Force to select a suitable location while also considering a range of environmental, operations, and land use constraints that would minimize impacts on wildlife and vegetation.

Based on their small size, the use of inert ordnance, and the siting and environmental review process described above, potential impacts of establishing new targets would be adverse but not significant, but would require management actions (siting process) and mitigation to avoid or reduce impacts.

3.2.8.3.2 Alternative B

The expected impacts to biological resources would be the same as those under Alternative A.

3.2.8.3.3 No Action Alternative

No changes to existing biological resource conditions are expected from implementation of the No Action Alternative and no additional impacts would occur.

3.2.8.4 Mitigations

The preceding analysis has identified adverse impacts to biological resources. Proposed mitigations for physical resources (Section [3.2.5.4](#)) and water resources (Section [3.2.6.4](#)) would benefit biological resources.

3.2.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.2.9.1 Affected Environment

The ROI for the RLOD action consists of the Oklahoma Impact Area of DTA, the Blair Lakes Impact Area of TFTA, and the land beneath the existing Eielson MOA where the expanded or new restricted areas would be located ([Figure 2-6](#) and [Figure 2-7](#)). Archaeological and historic architectural resources at the training areas were characterized using existing survey and analysis information from installation Integrated Cultural Resources Management Plans (ICRMPs). The ROI also includes the land where a new target area in northeast DTA in Training Area (TA) 544 and a new target area in southwest DTA in TA 533 are proposed for both alternatives.

Archaeological and historic architectural resources under airspace, which are unlikely to be affected by aircraft overflights (see Section [3.1.9.2](#)), were characterized using the records of the National Register and National Historic Landmark.

DONNELLY TRAINING AREA

The Donnelly Training Area (DTA) is located in central Alaska, north of the Alaska Range in the Tanana River valley, and consists of DTA-East, DTA-West, and three outlying training sites. DTA-East and DTA-West cover approximately 623,585 total acres (USARAK 2010-3).

ARCHAEOLOGICAL RESOURCES

Donnelly Training Area

More than 26 archaeological investigations have been conducted on DTA since 1963, identifying 449 prehistoric sites, six historic sites, and one archaeological district (USARAK 2005-3, USARAK 2010-4, USAG-FWA 2012). The majority of the archaeological surveys conducted in DTA have been limited to DTA-East, which constitutes 25 percent of the entire training area. Of the archaeological sites identified, 99 have been evaluated for inclusion in the National Register, resulting in 29 sites being determined eligible for listing. The archaeological sites identified in DTA generally consist of small surface or shallowly buried lithic scatters, reflective of temporary task-related activities or short-term residential camps. Archaeological survey of the land area in northeast DTA in TA 544 and in southwest DTA in TA 533 for the two proposed new target areas was performed in June 2012, and no archaeological resources were identified.

Tanana Flats Training Area

TFTA is a large tract, 653,748 acres in size, south and west of the Tanana River approximately 32 miles south of the city of Fairbanks between the Wood and Tanana Rivers. TFTA is located in the Tanana-Kuskokwim lowlands, and the landscape is characterized by several features that are topographically higher than the surrounding landscape. Most of the area is composed of recent swamp deposits and floodplain alluvium. Higher landforms such as the Wood River Buttes, Clear Creek Butte and the Blair Lakes hills are capped by a thin mantle of aeolian silt (loess) (USARAK 2010-4).

TFTA is home to 147 known archaeological sites and three Archaeological Districts, all three districts having been determined to be eligible for inclusion in the National Register. Of the 147 individual archaeological sites, 11 have been determined to be eligible for inclusion in the National Register, two are not eligible, and 134 have not been evaluated (USARAK 2010-4, USARAK 2005-3, USAG-FWA 2012). Unevaluated archaeological sites are managed and treated as eligible for the National Register until formally evaluated. The Archaeological Districts consist of Clear Creek Buttes Archaeological District (five sites on the crest of Clear Creek Buttes); Wood River Buttes Archaeological District (27 prehistoric sites located among the Wood River Buttes); and Blair Lakes Archaeological District, which consists of four prehistoric sites yielding flaked stone artifacts and faunal remains from a buried context and two historic sites (log cabin structural remains and cache pit remains and artifacts associated with the late 1930s Walter “Tex” Blair homestead). The Blair Lakes Archaeological District is located on the north shore of Blair Lakes South (USARAK 2010-4).

TRADITIONAL CULTURAL PROPERTIES AND ALASKA NATIVE CONCERNS

No properties of traditional religious and cultural importance are known to be located in either DTA or TFTA. The Army is aware that there may be properties of traditional religious and cultural importance on their lands. Several studies have indirectly addressed the possible presence of such properties but no direct inventory on Army land exists (USARAK 2005-3).

Training Airspace

Archaeological sites under training airspace include Native burial grounds, village and settlement sites, and historic mining sites (Air Force 2006-1). Architectural resources under the proposed expansion of R-2202 and the proposed change in the Eielson MOA include structures relating to gold mining, trapping, or the railroad (Air Force 2006-1). In addition to National Register-listed sites, there are likely to be additional cultural resources that are either eligible or potentially eligible for National Register listing

under airspace. Locations of Federally recognized Alaska Native tribes under or near the airspace discussed below are illustrated in [Figure 3-10](#).

NATIONAL REGISTER-LISTED PROPERTIES

No National Register-listed properties are located on lands underlying the existing Eielson MOA.

TRADITIONAL CULTURAL PROPERTIES AND ALASKA NATIVE CONCERNS

No Federally recognized Alaska Native tribes are located under the Eielson MOA ([Figure 3-10](#)), and no properties of traditional religious and cultural importance are known to be located there.

3.2.9.2 Impact Assessment Methodology

The general methodology for evaluating cultural resources is described in Section [3.1.9.2](#).

3.2.9.3 Environmental Consequences

3.2.9.3.1 Alternative A (Preferred Alternative)

This alternative would expand R-2202 to the west into Eielson MOA and utilize targets in the Oklahoma Impact Area in DTA. The expanded restricted airspace would be used during MFEs for 60 days annually at a maximum of 4 hours daily. This alternative also proposes to establish a new target area in northeast DTA in TA 544 and a new target area in southwest DTA in TA 533. The proposed new targets would not, however, be located within an existing DTA impact area, but it would provide the ability to train only with inert GBU-32 ordnance while staying within the existing R-2202 restricted area in DTA.

AIRSPACE USE

No significant impacts are anticipated to cultural resources from the expansion of R-2202 and its training use. The annual average noise levels under the proposed change in the Eielson MOA airspace structure are not expected to noticeably change as a result of increased training activities. As described in Section [3.2.2.3](#), the number of sortie-operations conducted in R-2202 would not be expected to change, and aircraft noise levels would remain approximately the same as under baseline conditions. Changes in instantaneous noise levels of less than 3 dB are typically not noticeable in nonlaboratory conditions, nor would the noise be sufficient to damage any archaeological or historic architectural sites. Scientific studies of the effects of noise and vibration on historic properties have considered potential impacts on historic buildings, prehistoric structures, archaeological cave/shelter sites, and rock art. These studies have concluded that overpressures generated by supersonic overflight were well below established damage thresholds and that subsonic operations would be even less likely to cause damage (see Appendix E, *Noise*).

No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed expansion of the restricted area. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed expansion of the restricted area (see Section [1.6.5](#)).

GROUND-BASED USE

The existing target array in the Oklahoma Impact Area would be used under Alternative A, and no significant impacts on cultural resources on DTA are anticipated. The underlying land would be used as a hazard area to support the western expansion of R-2202, and likewise no impacts on DTA cultural resources are anticipated.

Establishing a new target area in northeast DTA and a new target area in southwest DTA is not anticipated to have impacts on cultural resources, as archaeological survey of the areas located no archaeological resources.

In compliance with Section 106 of the NHPA, ALCOM, on behalf of the Air Force, completed consultation with the Alaska SHPO and determined that no historic properties will be affected by implementation of the proposed action. All compliance requirements for consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities regarding ALCOM's finding of no historic properties affected has been completed. In accordance with AFI 32-7065 (Air Force 2004-3), all NHPA Section 106 consultation has been completed.

3.2.9.3.2 Alternative B

Alternative B would establish a new restricted area that would link R-2211 and R-2202. This alternative would use the Blair Lakes Impact Area on TFTA and the Oklahoma Impact Area on DTA. This alternative also proposes to establish a new target area in northeast DTA in TA 544 and a new target area in southwest DTA in TA 533, as described for Alternative A.

AIRSPACE USE

No significant impacts are anticipated to cultural resources from the creation of a new restricted area linking R-2211 and R-2202 and its training use. As described in Section [3.2.2.3.2](#), noise impacts at Blair Lakes Impact Area under Alternative B would be minimal and munitions usage and noise impacts at Oklahoma Impact Area would be the same as under Alternative A. Changes in instantaneous noise levels of less than 3 dB are typically not noticeable in nonlaboratory conditions. Scientific studies of the effects of noise and vibration on historic properties have demonstrated that flight operations would be unlikely to cause damage (see Appendix E, *Noise*).

No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed new restricted area. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed new restricted area (see Section [1.6.5](#)).

GROUND-BASED USE

Similar to Alternative A, no significant impacts to cultural resources are anticipated from establishing new temporary impact areas and targets or from their use for training with inert ordnance. The existing target array in the Oklahoma and the Blair Lakes Impact Areas would be used under Alternative B, and no significant impacts on cultural resources on TFTA or DTA are anticipated. No impacts on cultural resources are anticipated due to the expansion of the hazard area.

3.2.9.3.3 No Action Alternative

Under the No Action Alternative there would be no expansion of the footprint, associated WDZ, and hazard areas for ordnance delivery or the use of ordnance requiring an expanded footprint. Existing use of the restricted areas would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.

3.2.9.4 Mitigations

No mitigations are identified for this resource at this time.

3.2.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.2.10.1 Affected Environment

A total surface area of approximately 758,710 acres underlies proposed modified airspace for this proposal. The following section focuses on the land use, management, and recreational uses of areas potentially affected by proposed modifications and new surface restrictions associated with the proposal.

LAND STATUS, MANAGEMENT, AND USE

Land Status

Land status in the proposal area is a mixture of Federal and State owned and managed, as shown in [Figure 3-21](#). Most of the land in the proposal area is DoD-owned, within DTA-West (about 523,730 acres). The State of Alaska owns 163,230 acres under the footprint of the proposed expanded restricted airspace in Alternative A, and 234,600 acres in Alternative B. Within the R-2202 expansion area footprint, DoD is the surface owner/user of about 12,900 acres within the DTA-West boundary of the proposal area (far southwest corner), which is underneath the proposed expansion area for R-2202. The proposal area overlaps two boroughs: Fairbanks North Star and Denali, as well as the Southeast Fairbanks census area.

Land Management and Use

The ADNR is responsible for planning and management of the non-military lands under the proposed expanded restricted airspace. For this area, the Eastern Tanana Area Plan is under development by ADNR. It will replace the 1991 Tanana Basin Area Plan that includes this area currently. A brief description of applicable management plans for the proposal area are provided in Appendix I, *Land Use, Public Access, and Recreation*.

On Army lands in Alaska, pre-planning for siting of new targets and infrastructure or new activities at ranges or on training areas requires coordination between the proponent (in this case, the Air Force) and the USARAK IRO. The USARAK IRO and USAG-FWA Environmental Division review the range user's proposal and work directly with the a proponent/range user to select a location that is suitable for the proposed purpose, while also considering a range of environmental, operations, and land use constraints. These considerations as well as information from the Installation Training Area Management (ITAM) RTLA, and Land Rehabilitation and Management (LRAM) programs would factor into site selection and specific restrictions or BMPs that the proponent must agree to follow. This includes periodic or post-activity assessments, restorative actions, and site clean-up.

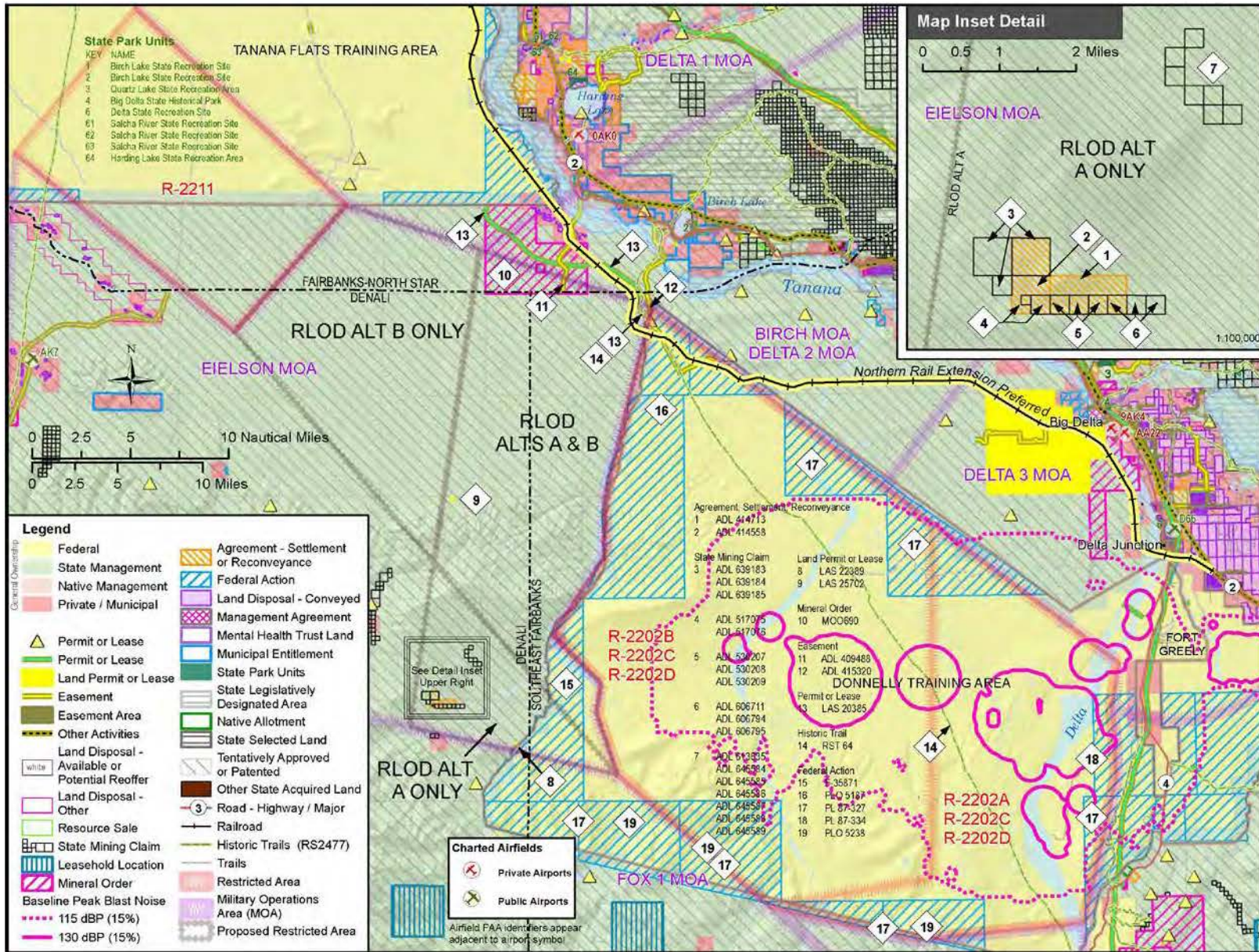


Figure 3-21. Land Status and Real Estate Interests in the Realistic Live Ordnance Delivery Proposal Area

Source: ADNR 2009-1, ADNR 2009-2, ADNR 2009-3, ADNR 2011-2, ADNR 2011-3, ADNR 2011-7, ADNR 2011-8, ADNR 2011-9

Land Uses on Military Lands. This proposal involves use of targets and surface activities on DTA and TFTA. TFTA is directly adjacent to the southern boundary of Fort Wainwright Main Post along the Tanana River. Within TFTA, there are three impact areas totaling about 59,000 acres: the Blair Lakes, Alpha, and Dyke Impact Areas. About 595,000 acres are used for light maneuver training. TFTA is bounded on the north and east by the Tanana River, on the west by the Wood River, and on the south by private and public lands. Due to lack of year-round access, TFTA is largely used by the Air Force for non-live-fire bombing exercises (USARAK 2010-5).

DTA is located on about 631,000 acres approximately 106 miles to the southeast of Fort Wainwright within the Tanana River Valley, near the confluence of the Delta River and Jarvis Creek. It is bordered by the Alaska Range on the south. DTA comprises two areas: DTA-West (523,730 acres) to the west of the Delta River, and DTA-East/Fort Greely (137,730 acres) to the east of the river. Together the two areas include approximately 493,570 acres of land used for large-scale maneuver events and live-fire exercises by the Air Force and Army. An additional 137,715 acres is classified as a duded impact area, with restricted access and use (USARAK 2010-5). Duded areas are off-limits to all public use.

Classifications used for planning and scheduling military operations reflect activities and functional requirements. Land may support discrete or multiple activities, depending on safety parameters and ability to sustain activities without environmental degradation. [Figure 3-22](#) shows the extent of these overlapping military use areas. The following is a list of the classifications described in the USARAK Range and Training Lands Program Development Plan (USARAK 2010-5).

- *Foot use* areas have good horizontal concealment and open forest floors that promote ease of pedestrian operations. These areas may have some vegetation and terrain that provides both visual obstructions for training realism and cover for maneuvering through an area. Much of Fort Wainwright and DTA is classified as foot use area.
- *Maneuver areas* are generally open to semi-open areas where vehicles can move without running into obstacles such as trees, range buildings, streams, wetlands, or lakes. Maneuver areas may support light or heavy maneuver vehicles, depending on vehicle types. Other areas that typically receive a good deal of maneuver training include all roads, trails, DZs, and training ranges.
- *Bivouac areas* are designed to provide temporary living accommodations within a defended position. They receive occasional short-term concentrated use by small units for both vehicular and foot Soldier operations. Field operations may involve some digging and shallow ground disturbance for setting up temporary camps.
- *Firing points* are small areas from which either artillery or mortars are fired into designated impact areas. These areas are often in open brushy habitats, or in cleared areas with high levels of vegetation disturbance from artillery units digging in. Firing points require level ground, cleared of vegetation.
- *Firing ranges* are permanent or semi-permanent facilities used for weapons firing, demolition, or urban assault courses, and often have associated buildings or berms. Military uses of firing ranges on DTA include direct-fire weapons training, Military Operations on Urban Terrain (MOUT) training, hand grenade training, and demolition training.
- *Drop zones(DZs) and landing zones* are typically cleared areas used for airdropping troops and equipment, and are maintained free of trees (less than 10 trees per acre) and shrubs by mowing, prescribed fire, and hydro-axing.

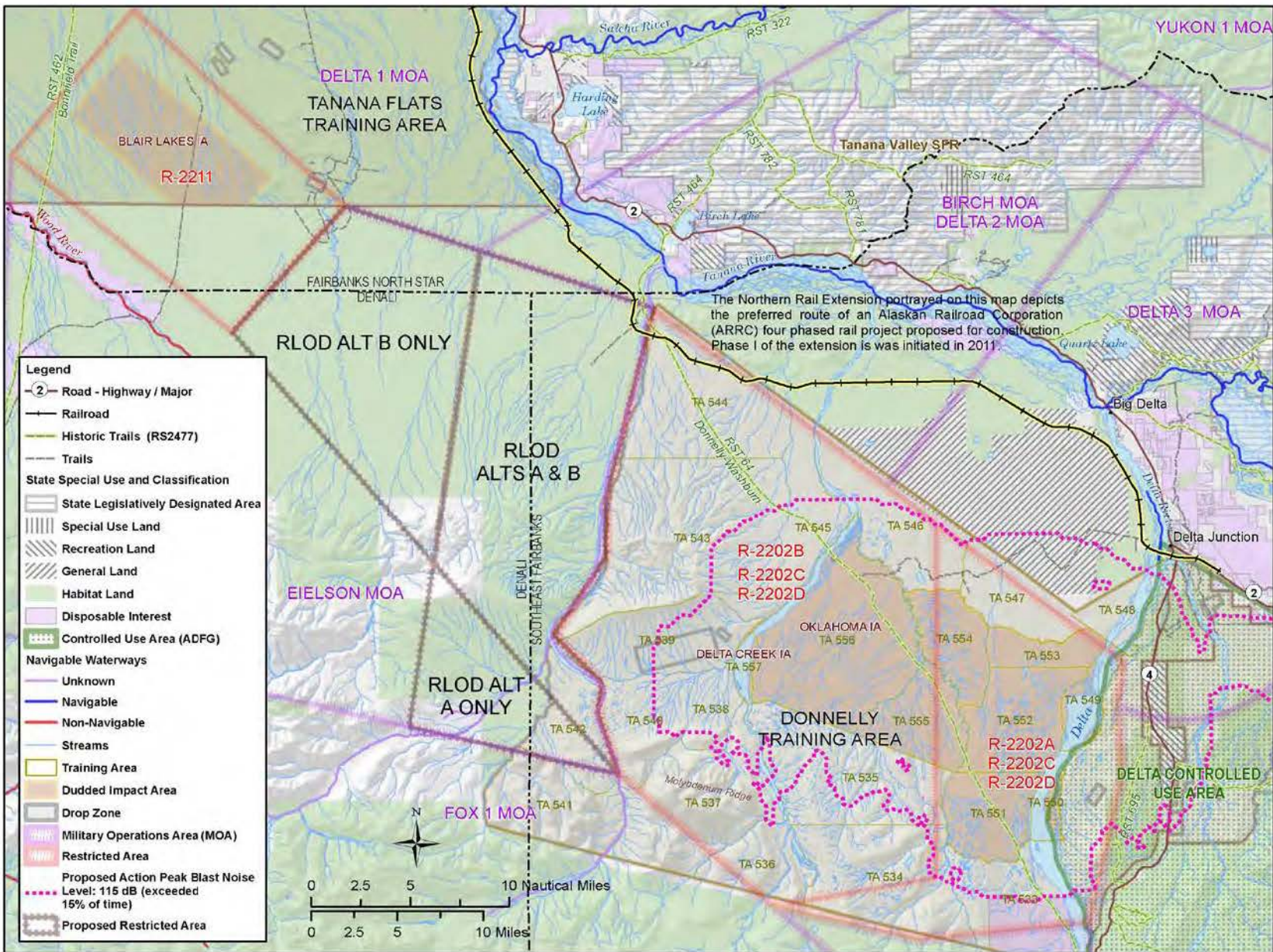


Figure 3-22. Military Uses, Special Use Areas, and Productive Uses in the Realistic Live Ordnance Delivery Proposal Area
Source: ADNR 2007, ADNR 2009-2, ADNR 2009-3, SAIC 2011-2, ADNR 2011-3, ADNR 2011-13

- *Observation Points* are small overlooks on elevated vantage points such as ridge tops or river bluffs surrounding an impact area. Most have a small building used to shelter an observer, who reports to an artillery unit on the results of their firing. They are also sometimes used as firing points for small arms and mortars and as bivouac areas.
- *Airstrips and assault strips* are semi permanent or permanent facilities for aircraft landing and takeoff that are not paved or part of an urban area. Airstrips and assault strips are sometimes associated with DZs, but are often not vegetated or have minimal vegetation.
- *Stryker Maneuver Corridor* consists of 20- to 30-foot-wide “lanes” cut through upland forest for use by Stryker vehicles. The ideal maneuver corridor incorporates irregularly spaced clumps of trees that provide avenues in which vehicles operate.

The primary public use on these training areas is recreation (described below, Section [3.2.10.1](#) in the [Public Access](#) subsection). There are very limited commercial productive activities on USAG-FWA land (USARAK 2006-2). There are a number of existing rights-of way, leases, and easements on DTA-West (for power lines, roads, and other infrastructure) that constrain other uses.

Land Uses on State-owned Land. Most of the non-military land underlying the Eielson MOA and restricted airspace is State-owned, with fish and wildlife habitat as the primary management value and use. This area has a history of previous military use for bombing and training, and is identified as an Military Munitions Response Program (MMRP) site with possible UXO (see the figure entitled “Contaminated Sites in the Fairbanks Area” in Appendix B, *Definition of the Resources and Regulatory Settings*). The area is administratively divided, falling partially within Denali Borough, FNSB, and the undesignated Southeast Fairbanks census area. Under State management, the area is also divided between the Yukon Basin and the East Tanana Area Plan boundaries.

This area is not road-accessible and remains largely remote and natural. As shown on [Figure 3-12](#), areas along the Wood River have high levels of hunter activity, as does the area between the Wood and Tanana Rivers on TFTA and between TFTA and DTA West. These areas are particularly active in late summer/fall for hunting, fishing, and other remote recreation. A few isolated private parcels have hunting cabins that are used seasonally (mostly in September). Portions of the land are identified for settlement along the Wood River.

Special Use Areas. There are no legislatively designated special use areas on Federal or State lands in the RLOD proposal area. A small portion of the Delta CUA (about 2 percent), an ADFG management area, overlaps with the east side of DTA West. ADFG restricts the use of motorized vehicles for hunting in this CUA.

Resource and Productive Use. The majority of State-owned land within the proposal area is managed as habitat land by the ADNR. The area also has several leases, conveyances, permits, and easements. [Table 3-31](#) identifies real estate interests and permitted uses on State land within the RLOD proposal area. On the remainder of the State lands, generally permitted land uses (see Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.3.1) are allowed unless specifically restricted. The locations of these existing interests are shown on in [Figure 3-22](#).

Table 3-31. Real Estate Interests, Permits, Easements and Productive Uses on Non-Military Land in the Realistic Live Ordnance Delivery Restricted Airspace Expansion Areas

ID #¹	Real Estate Interest	RLOD A (only)	RLOD B (only)	RLOD A+B (common to both)	Notes
	Area under modified airspace (acres)	39,224	105,276	137,312	
Mineral Estate (acres)					
1	Federal Mining Claim, Reconveyance ADL 414713	320	NA	NA	Bureau of Land Management – Active
2	Federal Mining Claim, Reconveyance ADL 414588	320	NA	NA	Bureau of Land Management – Active
3	State Mining Claim ADL 639183 ADL 639184 ADL 639185	360	NA	NA	Single owner
4	State Mining Claim ADL 517075 ADL 517076	50	NA	NA	Single owner
5	State Mining Claim ADL 530207 ADL 530208 ADL 530209	120	NA	NA	Single owner
6	State Mining Claim ADL 606711 ADL 606794 ADL 606795	120	NA	NA	Single owner
7	State Mining Claim ADL 613635 ADL 645584 ADL 645585 ADL 645586 ADL 645587 ADL 645588 ADL 645589	280	NA	NA	Single owner
8	Land Permit/Lease LAS 22389	UNK	N/A	NA	Year-round recreational camp; private permit holder
9	Land Permit/Lease LAS 25702	NA	NA	UNK	Year-round recreational camp; private permit holder
10	ADNR Mineral Order – Open MOO 690	NA	NA	5,721	Mariana Disposal Area (opened 1994)
11	Easement ADL 409488	NA	NA	UNK	Public right-of-way, 0.91 miles
12	Easement ADL 415320	NA	NA	UNK	ADFG Public Right-of-Way 0.55 miles
13	Permit/Lease LAS 20385	NA	NA	UNK	USARAK miscellaneous land use (portion of Maneuver Corridor), 1.11 miles

Table 3-31. Real Estate Interests, Permits, Easements and Productive Uses on Non-Military Land in the Realistic Live Ordnance Delivery Restricted Airspace Expansion Areas (Continued)

ID # ¹	Real Estate Interest	RLOD A (only)	RLOD B (only)	RLOD A+B (common to both)	Notes
14	Permit PLO 5187	NA	NA	UNK	Historic trail, RST 64, Donnelly-Washburn trail, 1.28 miles
15	Federal Action F-35871	5,663	NA	5,789	F-35871 (portion), Other Federal Action; land within DTA
16	Federal Action Public Land Order 5187	N/A	N/A	52	PLO 5187 (portion)

Key: ADFG=Alaska Department of Fish and Game; ADNR=Alaska Department of Natural Resources; DTA=Donnelly Training Area; LAS=Land Administration System; MOO=Mineral Opening Order; N/A=not applicable; PLO=Public Land Order; RLOD=Realistic Live Ordnance Delivery; RST=indicates a trail number; UNK=unknown; USARAK=U.S. Army Alaska.

Source: ADNR 2009-2, ADNR 2011-7, ADNR 2011-8, ADNR 2011-9.

Two permits on State land allow for commercial guide trips to cabins within the RLOD proposal footprint. The status of 20 existing mining claims (to four separate individuals) underlying the expanded R-2202 footprint is unknown. A small, active mining area is situated along Portage Creek in the Little Delta River drainage. The area has one open mineral order, two mining claim reconveyances to BLM, two public right-of-way easements (for about 1.5 miles), a historic trail right-of-way for the Donnelly Washburn RST-64 trail (an RS 2477 trail), and a Federal action for lands within DTA-West.

Private and Native Lands

There is no private property within the proposal footprint. Private mineral claims and leases on State land are identified on [Figure 3-22](#) and discussed above.

Outside the proposal footprint, underlying the Eielson MOA, there are two areas of State land disposal that contain several remote settlement land holdings. One area is along the Bonnifield Trail and one is served by a public right-of-way (ADL 401880). Both are along tributaries of the Wood River system and both have several small private land parcels.

LOCATIONS OF INTEREST

The ADNR has indicated that the Wood River area has potential for settlement for FNSB, and is important as a hunting area for residents of Fairbanks due to proximity, wildlife resources, and existing access trails into remote areas.

PUBLIC ACCESS

Land Access

Roads and trails within the RLOD proposal area, including RS 2477–designated routes, are listed in [Table 3-32](#) and shown in [Figure 3-21](#).

Table 3-32. Public Access Within the Area of Influence for the Realistic Live Ordnance Delivery Proposed Action and Alternatives

Public Access	Designation	Length (miles)
Bonnifield Trail	RS 2477 Trail/ RST 462	5
Donnelly Dome: Old Valdez Trail Segment	RS 2477 Trail/ RST 695	< 1
Donnelly-Washburn	RS 2477 Trail/ RST 64	45

Source: ADNR 2009-2.

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Public access areas under the Eielson MOA on non-military lands include one RS 2477 trail, Donnelly-Washburn (RST 64), and at least one non-RS 2477 trail, the Winter Trail.

Public access areas under R-2211 include one RS 2477 trail, Bonnifield Trail (RST 462). In addition, there are at least two non-RS 2477 trails, including the Tractor Trail, which crosses the Blair Lakes Impact Area, and an unnamed trail located in the southeast corner of the Blair Lakes Impact Area.

R-2202 overlies portions of DTA including Fort Greely West Training, the Oklahoma/Delta Creek Impact Area, the Mississippi Impact Area, and the Washington Impact Area within DTA. The public access areas under R-2202 include two RS 2477 trails: Donnelly Dome: Old Valdez Trail Segment (RST 695); and Donnelly-Washburn (RST 64). In addition, there are a number of non-RS 2477 trails, including the Winter Trail, which crosses R-2202 from the northwest corner to the southeast corner.

Access to Military Land

Public access to training areas is allowed subject to safety restrictions, military security, military training schedules, and compatibility with the military mission. Currently, public access is allowed to 89 percent of USAG-FWA-managed lands, primarily for recreation. Military training takes priority over recreational use of military lands; USARAK accommodates access to military lands during hunting seasons to the maximum extent possible.

Access is readily available to DTA, especially from the eastern side from Meadows Road, Dome Road, Old Richardson Highway, and Fleet Street, connecting directly to either the Richardson or the Alaska highways. Additional access was historically available through the Fort Greely cantonment area (now managed by Space and Missile Defense Command [SMDC]), but general or recreational access is no longer available.

In addition to ground access via roads, much of DTA is available to aerial and ORRV access. ORRV and winter trails exist across both the eastern and western parts of the training area. The 33-Mile Loop is one of the more popular trail systems in DTA-East. DTA-West is only accessible in winter when the Delta River is frozen over, or by air or boat.

Public use is limited on some parts of DTA where there are potential or ongoing safety hazards. DTA has four primary categories of recreation use areas: Open Use, Modified Use, Limited Use, and Off-Limits areas. These areas may be permanently closed to public access due to specific military activities. Range Control can provide a listing and description of such access restrictions within DTA.

DTA is subject to temporary closures and recreational use restrictions due primarily to priority military training operations that would be incompatible with joint use. Seasonal closures are implemented during freeze-up or break-up. Public users are required to follow access procedures, including use of the USARTRAK automated check-in phone system, to ensure that land area is available for recreational use. This information is also available through both the Range Control office and the Environmental Resources Department.

Limitations and restrictions on public access also depend on the type of designated military use for each area. Some common incompatible uses of military lands include non-military structures, easements, and leases. Three general categories of military land affecting public access are discussed below and include: (1) training areas and nonfiring facilities; (2) firing ranges, SDZs, and nonduded impact areas (dedicated impact areas); and (3) duded impact areas.

Training Areas and Nonfiring Facilities. Public access to training areas is allowed subject to safety restrictions, military security, and military training schedules, and compatibility with the military mission.

Compatible uses may include hunting, fishing, trapping, bird watching, hiking, skiing, dog sledding, and ORRV operation. Currently, range operators indicate that access is generally provided during September for the peak hunting season, and, overall, these areas are available for non-military uses between 70 and 80 percent of the time.

Firing Ranges, Surface Danger Zones and Nondudded Impact Areas. Public access into firing ranges, SDZs, and nondudded impact areas is normally disallowed due to conflicts with the military mission. However, there are times during the year when public use does not conflict with military training and the public is allowed into these areas.

Dudded Impact Areas. Impact areas are used for weapons targeting and firing practice. High-hazard (dudded) impact areas are closed to the public due to the hazard of UXO. Nondudded impact areas are not permanently restricted, although permission to enter these areas is limited. Dudded impact areas in DTA are shown in [Figure 3-13](#).

The central portion of DTA-West is designated primarily as an impact area and off-limits to public access, even though it has good road access. Permanent, dedicated impact areas include Oklahoma, Delta Creek, Mississippi, Washington, portions of the Allen Army Controlled Fire Area, and the Lakes Maneuver Impact Area. Surrounding training areas are classified as Modified (open for nonmotorized recreation year-round and to motorized recreation during appropriate snow cover) and Open Use areas. The CRTC complex at Bolio Lake is off-limits to public access and use.

Warning signs have been placed in DTA, the majority being east of the Delta River. Eleven gates have been constructed along the eastern boundary of the Delta River, and one is located in the northern portion of the Allen Army Controlled Fire Area. The lands between Meadows Road and the impact area boundary (Delta River) are off-limits and are posted accordingly. The Wills Small Arms Complex and the battalion bivouac site area are also off-limits and gated and posted. Warning signs exist on all probable approaches to restricted areas.

TFTA is bordered by the Tanana and Wood Rivers, and there are no permanent bridges to TFTA. Summer access is by boat or plane only. Constructed ice bridges over the Tanana River provide for ground access to TFTA in the winter. Development of the Northern Rail Extension project was recently approved and is moving into the first phase of construction. That project will provide a bridge over the Tanana River just northeast of the TFTA. Signs have been posted in TFTA, primarily on maintained approaches to the Blair Lakes Impact Area. Several maneuver trails run near or across parts of this impact area, and these approaches have been heavily posted to indicate significant safety hazards in the impact area.

The winter sled trail entering the Blair Lakes Impact Area from the north is gated and posted with warnings. This is the primary access route to the impact area, and warning signs are posted at lengths along the access route. Other warning postage around the Blair Lakes Impact Area is sparse, due to lack of additional access and the remote location. Blair Lakes Impact Area access is managed by the Air Force.

TFTA has two impact areas, of which the Blair Lakes Impact Area, is within the ROI for this alternative. The Blair Lakes Impact Area has been used as a bombing range, historically, and is off-limits to public access.

Access to Non-military Land

In the proposal area, the Bonnifield Trail and Donnelly Washburn trails provide access into the Wood River and Little Delta River areas. These trails intersect with access points along the Tanana River.

Areas south of proposal area (south of the Wood River) are also accessible via an extension of the Rex trail from the Parks Highway and along the river corridors. Many hunters fly into these areas and the northern parts of the Alaska Range using small private airstrips and flat areas to land.

Aerial Access

The locations of public and private airports and airstrips providing access to the proposal area are shown in [Figure 3-21](#). [Table 3-33](#) lists chartered airports in the area and indicates which communities and special use areas are potentially served by each. None of these airfields lie directly under the proposed airspace footprint.

Table 3-33. Chartered Airports Serving the Realistic Live Ordnance Delivery Proposal Area

Chartered Airport	Areas Underlying or Within 20-mile Service Radius	
	Community	Special Use Area
Clear Creek Airport	Calcha CDP, Eielson AFB CDP, Harding-Birch Lakes CDP	Tanana Valley SFR, Salcha River SRS
Gold King Creek Airport	None	None
Greg’N Sage Airport	Badger CDP, North Pole City, Moose Creek CDP, Salcha CDP, Eielson AFB CDP, Harding-Birch Lakes CDP	Tanana Valley SFR, Chena River SRA, Harding Lake SRA, Birch Lake SRS, Salcha River SRS
Scotts Airport	Harding-Birch Lakes CDP, Salcha CDP, Eielson AFB CDP	Tanana Valley SFR, Harding Lake SRS, Salcha River SRS, Birch Lake SRS

Key: AFB=Air Force Base; CDP=Census Designated Place; SFR=State Forest; SRA=State Recreation Area; SRS=State Recreation Site.

Navigable and Public Waters

There are numerous water bodies within the proposal footprint. The Tanana River and a portion of the Wood River, bordering the west side of TFTA, are categorized as navigable.

RECREATION

Recreation on Military Land

Historic recreational use numbers for DTA were reported in the *Final Environmental Impact Statement for Transformation of U.S. Army Alaska, Vol. 2, Appendix E* (USARAK 2004-1). Recreational use statistics for the entire DTA are summarized in [Table 3-34](#), as no statistics exclusive to DTA-West were available.

Donnelly Training Area

Hunting. All Federal and State hunting laws apply within DTA. DTA-West is located in GMU 20A and DTA-East in GMU 20D. The ADFG regulates all activities—e.g., hunting seasons, bag limits, weapon restrictions, accessibility—for these GMUs.

Hunting occurs on DTA land throughout the year, with a disproportionate amount of use occurring in fall. Most big game, upland bird, and migratory waterfowl seasons begin in August or September. Moose is the most popular game species pursued in DTA (USARAK 2004-1). Its season starts on or about September 1. Other big game species hunted include bison and bear (USARAK 2004-1). More data on wildlife populations in DTA can be found in [Section 3.1.8, Biological Resources](#). Hunting is allowed within open areas of DTA as determined by Range Control.

DTA-West is open from September 1 through September 20 (this end date may change annually) for hunting. Antler restrictions may apply in this GMU and are described in the Alaska Hunting Regulations. Data compiled by ADFG (see [Figure 3-12](#)) indicates moderate use (about 40 to 100 days of hunter use days per year) on DTA West outside of the “No Access” areas.

State of Alaska regulations allow black bear hunting year-round in GMU 20D, with a harvest limit of three per regulatory year. Black bears may also be taken over a State-registered bait stand from approximately April 15 to June 30. Black bear baiting is allowed in DTA after registration of the stand with the State of Alaska and USAG-FWA. As with all recreational activities, some areas may be temporarily closed to bear baiting due to training.

Table 3-34. Recreational Use in the Donnelly Training Area and Tanana Flats Training Area

Recreational Category	Average Annual Users
Donnelly Training Area	
Hunting	1,150
Trapping	50
Fishing	1,500
Trail Use	200
Off-Road Recreational Vehicles	400
Other	1,700
Tanana Flats Training Area	
Annual permits issued	Not available
Hunting	Not available
Trapping	Not available
Fishing	Not available
Trail Use	Not available
Off-Road Recreational Vehicles	Not available

Source: USARAK 2004-1.

Grizzly (brown) bear hunting is open from approximately August 10 to June 30, with a harvest limit of one per regulatory year. The caribou hunt (bulls) in DTA-East is open to residents only through a registration hunt. This season occurs approximately August 15 to August 25. Bison hunts are allowed through an ADFG drawing process. The number of permits issued is based on that year’s population estimates and composition. There is insufficient habitat for Dall sheep in DTA-East; thus, no hunting occurs. Access through DTA-East for Dall sheep hunting in other areas off-post does occur, as the Granite Mountains (to the east of DTA-East) are part of an ADFG drawing permit sheep hunting area.

Trapping. Trapping is allowed in DTA. Trapping in the area requires registration of traplines with the USAG-AK Environmental Division, a Recreational Access Permit, and a daily phone call to the USARTRAK system. Popular furbearer species for trapping include lynx, beaver, pine marten, fox, and wolves. Trapping use has been fairly constant in the training area, and trappers’ lines are usually placed in the same general location each year.

Fishing. Fishing is a popular recreational activity in DTA. In addition to naturally existing populations of many sport fish, there are 16 lakes with stocked sportfish populations, including grayling, rainbow trout, arctic char, and king salmon. Stocked lakes include Bolio, Bullwinkle, Chet, Nickel, J, Doc, Shellfish, Mark, North and South Twin, Rockhound, Luke, Ghost, and No Mercy within the Meadows Road–Windy Ridge Road loop. Fifteen of these areas accessible by road or trail through the training areas west of Richardson Highway. Weasel Lake, near the southern boundary of the training area, and Koole Lake, in the northwest, are also stocked. Koole Lake is accessible by floatplane in summer and

snowmachine in winter. ADFG is responsible for maintaining stocked fish populations on military lands. Fishing in the State of Alaska requires that all persons 16 and older purchase a State fishing license. Fishing on DTA requires a Recreational Access Permit and a daily phone call to the USARTRAK system.

Icehouses are permitted on DTA lakes. Icehouses not removed from the ice at the end of the fishing day must be registered, and permit must be obtained from ADFG. A separate military permit for icehouses is not required.

Trail Use. DTA contains many trails east of the Delta River within the west part of the training area and throughout the east side of the training area. The most common hiking route in DTA is the trail to the top of Donnelly Dome, east of the Washington Range along the Richardson Highway. Public access for trail use is allowed with a valid Recreational Access Permit, but is subject to closures and to safety and military security restrictions. A call to the USARTRAK system is also required before entering the area.

Other popular trail activities on Army lands include sightseeing, bird watching, berry picking, skiing, and dog sledding. Many recreational activities are seasonal and occur in brief bursts each year. Records of nonextractive recreational use of most Army lands are unavailable.

Off-Road Recreational Vehicles. ORRVs use in DTA includes airboats, snowmachines, dirt bikes, three- and four-wheelers, and four-wheel-drive vehicles. ORRVs are used in association with many activities in interior Alaska. These vehicles are primarily used to access hunting, fishing, and trapping areas, and for recreational riding.

Prohibited Activities. Typical recreational activities prohibited on DTA include recreational swimming in streams, ponds, or lakes; walking of pets that are not under voice or leash control; hang gliding, ballooning, paragliding, or bungee-jumping; commercial rafting or boating; building of structures without prior approval; littering or abandonment of any man-made objects (including geocaching); and removal of minerals (including gold panning, dredging, and mining of any kind) or fossils.

Tanana Flats Training Area

TFTA is an open use area except for the impact areas, including the Blair Lakes Impact Area, underlying R-2211, which are closed areas and off-limits to public access and recreational uses. TFTA is not linked to any road system and is accessible by airplane, and boat in the summer, and snowmachine in the winter. Hunter access is a significant issue with regard to the impact Areas on TFTA. These areas are closed to access due to UXO and the related safety and liability concerns. However, there is often illegal access during hunting, fishing, off-road vehicle (ORV), ORRV, and boating activities. The public is expected to comply with all rules concerning restricted access along with permanently and temporarily closed portions of TFTA. The public may use unimproved remote landing areas after complying with notification requirements, provided this use does not interfere with military activities or incur Federal liabilities. Landing areas may or may not be maintained by the Army and their use by the public is at one's own risk. Users must have a Recreational Access Permit. Signs are posted to warn the public of impact areas and other closed areas. Warning/Information signs are posted on flagpoles at all major access points along the Richardson Highway. When an area is in use, a red flag is raised at the access point, warning the public of current off limits areas.

Hunting. TFTA is located within GMU 20A. Hunting, particularly for moose, is popular in TFTA. Hunting and fishing are the main recreational activities occurring on Fort Wainwright lands. Data show that 21 percent of the interior Alaska moose harvest occurs on military lands, while 2.3 percent of the Interior caribou harvest and 2.1 percent of the sheep harvest are also on military-controlled lands (USARAK 2007-2). Twenty hunters registered bait stations for black bears in 2010. Between 1997 and

2010, an average of eight bears per year have been taken (USARAK 2010-6). As shown on [Figure 3-12](#), the number of hunting use in central and east edge of TFTA is high to very high.

Trapping. During the 2009/2010 season, lynx (177) and marten (90) were the most frequently harvested fur-bearing animals on TFTA, followed by fox, beaver, mink, coyote and wolf at lesser levels (USARAK 2010-7).

Fishing. Fishing is a popular public activity in TFTA. There are no stocked lakes in TFTA, although the Blair Lakes range offers pike fishing opportunities. In addition, salmon runs on the Tanana River attract sport fishers. Blair Lakes are used for fly-in hunting and fishing and hunting.

Trail Use. The primary trails on TFTA include Blair Lakes Trail and Bonnifield Trail. Shelters exist along the Wood River, Willow Creek, Clear Creek, Salchaket, Salchaket East, and Blair Lakes Trail. However, little hiking is known to occur in TFTA due to the widespread wetland areas throughout the training area and the lack of all-season ground access. Drier trails are remote and less accessible.

Off-Road Recreational Vehicles. ORRV use on TFTA has been high. All-terrain vehicles are brought over by boat during summer months, and snowmachines are used in winter. USAG-FWA manages ORRV use to reduce the level of ORRV damage to wetlands in TFTA. Airboats are also popular ORRV activities in TFTA. Most airboat traffic into the fens occurs after July 15 annually. Airboats are well suited for use on the shallow Chena and Tanana Rivers, as well as on a unique system of floating mat fens in TFTA. USAG-FWA is planning to designate the Tanana Flats Special Use Recreational Management Area between Salchaket Slough, Willow Creek, the Tanana River, and Bonnifield Trail. This area is divided into the upper and lower fens (swamps). The Tanana Flats Special Use Recreational Management Area would be open to all types of ORRV with no restrictions when the soil was frozen. All ORRVs must stay on existing trails during unfrozen conditions. This special use management area would be open to airboats and other motorized watercraft with no restrictions between August 15 and April 1 each year. Between April 1 and July 15, the special use management area would be off-limits to all ORRV vehicles, including airboats and other motorized watercraft. Between July 15 and August 15, access into the upper and lower fens (managed separately) is dependent on water level. The Tanana Flats Special Use Recreational Management Area would be open to all other recreational activities year-round. Outside of the Special Use Recreational Management Area in TFTA, airboats and other motorized watercraft would be limited to open water; they could not access the fens. USAG-FWA has also proposed to create a Special Interest Area between Willow Creek and Crooked Creek, which would restrict creation of on new trails in this area (USARAK 2006-2).

Recreation on Non-military Land

[Figure 3-22](#) shows State land classified for recreational values. The Tanana Basin Area is mostly classified as State Habitat Area is located on non-military land under the Eielson MOA, R-2211, and R-2202, and within the ROI for the RLOD proposal.

Hunting and Trapping. The RLOD proposal area within GMU 20A is managed by ADFG. This area is considered a world-class area for moose hunting, with over 4,000 moose permits issued annually, and harvest levels well above 1,000 animals over the last several hunting seasons (ADFG 2010-1). The primary moose hunting periods are from mid-August to mid-September, mid-November to mid-December, and mid-January to the end of February; however, these seasons can vary from year to year. Also harvested are brown bear, black bear, and Dall sheep. Trapping also occurs throughout the entire area, and is a priority use area by residents from the Fairbanks area. As shown on [Figure 3-12](#), the number of hunting use in central and east edge of TFTA is high to very high. A description of the primary management focus, recreational hunting and trapping resources, and seasons for this unit is provided in Appendix I, *Land Use, Public Access, and Recreation*. As shown in [Figure 3-12](#), the area

between R-2202 and R-2211 under the Eielson MOA has relatively high use for hunting, as does the area along the Wood River. This high use is largely due to the prime moose habitat, and proximity to the Fairbanks population base. [Table 3-35](#) shows that moose is by far the dominant species harvested in GMU 20A, which encompasses the State and military lands of this proposal. Lynx are the most harvested fur-bearing animal.

Fishing. The Tanana River basin fisheries offer some diverse quality fishing opportunities but do not have the richness and fish numbers of those nearer the coast. Fish habitat in this area changes rapidly with elevation. Burbot are caught in river systems, primarily in the Tanana River, with a few lakes supporting burbot populations as well. The ADFG has increased fishing stocks several lakes in the basin ranging from 3 to 600 acres in size with rainbow trout, silver salmon, lake trout, arctic char, and arctic grayling.

Table 3-35. Harvest of Game Species within Game Management Unit 20A

Game	Reported Hunter Harvest-Estimated Total	Reporting Period
Hunting		
Moose	1,108	2008-2009
Brown Bears	26	2007-2008
Black Bear	34	2006-2007
Dall Sheep	85	2006-2007
Trapping		
Lynx	512	2008-2009
River Otter	8	2008-2009
Wolverine	7	2008-2009

Sources: ADFG 2011-5; ADFG 2011-6; ADFG 2011-7; ADFG 2011-8; ADFG 2011-9.

3.2.10.2 Impact Assessment Methodology

The general methodology for evaluating land use, public access, and recreation are described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The following are the primary impacts of this proposal on land use, including public access and recreation:

- Effects of military overflights on underlying uses and activities (primarily from aircraft noise), as described in Section [3.1.10.2](#)
- Effects of countermeasures deployment on land uses and recreation, as described in Section [3.1.10.2](#)
- Indirect effects of limited civilian air access on land use and recreation, as described in Section [3.1.10.2](#)
- Effects of weapons and munitions use on land uses, private and public access, and recreation, as described below

Land Management and Use. Expending weapons causes temporary hazardous conditions on the ground requiring the exclusion of persons from the hazardous area. This assessment locates the spatial extent of the exclusion areas affected by hazardous conditions and identifies the ownership, current permitted or ongoing uses or these areas, and any specially designated areas. It also provides the temporal extent of exclusion from affected areas—in terms of frequency, duration, and seasonality—for current and

proposed levels of military operations, where data are available. Based on this, the viability of land uses or change in suitability for ongoing, intended, or authorized uses (per plans, special designations or controls, or existing rights) is evaluated (as none, minor, moderate, high/substantial, or beneficial). The analysis considers changes to both public uses on affected military land and public and private uses on the proposed restricted area addition on non-military land.

Expending weapons also generates impulsive noise. The method used to assess the impacts of impulsive noise on land use is similar to that described for noise from aircraft overflight, as described in Section [3.1.10.2](#). The compatibility standards presented in Section [3.1.1.2](#) and [Table 3-21](#) provide guidelines for evaluating effects on persons and populated areas and productive uses. Other factors are considered in evaluating noise impacts on uses in remote areas, where absence of noise is an intrinsic value (see Section [3.1.10.2](#), General Methodology). The impulsive noise from weapons firing can yield impacts ranging from annoyance to physiological damage. [Table 3-36](#) indicates expected risks from impulsive noise levels. Frequency of peak events is one of the major factors affecting annoyance and impact.

Table 3-36. Noise Risks from Impulsive Noise

Predicted Sound Level, Peak	Risk
<115 dB	Low risk of noise complaints
115–130 dB	Moderate risk of noise complaints
130–140 dB	High risk of noise complaints, possibility of damage
>140 dB	Threshold of permanent physiological damage to unprotected human ears. High risk of physiological and structural damage

Indirect effects of UXO, primarily a safety issue, are addressed in Sections [3.2.3.3](#) and [3.2.7.3](#). The land use analysis describes the potential for accumulation of UXO from proposed operations to render land unsafe for use or for development for current or future uses.

Public Access. The analysis identifies the segments of public roads and trails, serving both public and private land that would have limited access due to operations under the proposal alternatives and quantifies the duration and frequency of closures. The analysis identifies which areas are served (and therefore not accessible) during closures. The degree of impact is dependent on the loss of availability to use access routes and the volume of use on these routes (where data are available). It also considers whether alternative routes exist to areas that are not affected by hazardous conditions but are inaccessible due to route closures.

Recreation. The evaluation of impacts on recreation uses a similar approach to that described above for land ownership, management, and use. The analysis identifies areas and sites used for recreation, and, where relevant, the specific types of recreational activities affected. The effect on recreation is primarily one of access rather than a change in intrinsic qualities. A small number of local residents have expressed the high value of subsistence and recreational use value.

3.2.10.3 Environmental Consequences

Due to safety regulations, this analysis assumes that the proponent would restrict ground access to all nonparticipating individuals, and would provide evacuation notice to all persons with surface interests in the areas under the expanded airspace, outside of DoD boundaries during periods of hazardous operations. For analysis it is assumed that these hazardous activities would occur on up to 150 days per year, for a maximum of 5 hours per day. All applicable existing mitigations, BMPs, and SOPs in effect for military

lands would apply for this proposed action. Information on existing mitigations is provided in Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*.

The Air Force, in coordination with the Army range management elements, would retrieve and “render safe” any areas where munitions land outside of designated impact areas on DTA-West or Blair Lakes Impact Area. The Air Force would not conduct RLOD training using the restricted airspace or DTA-West in the month of September in order to avoid one of the busiest months for hunting. The Air Force would publish advanced notification of the schedule of where and when ground access restrictions occur, in order for individuals to plan for these closures. Additionally, the Air Force would have responsibility for verifying that nonparticipating individuals are clear of the WDZ and the restricted airspace prior to undertaking hazardous training activities.

3.2.10.3.1 Alternative A (Preferred Alternative)

Land Status, Management and Use

Effect of Impulsive Noise on Public and Private Land Use. Section 3.2.2.3 provides current and projected noise levels for proposed operations of the RLOD. Sections 3.1.10.2 and 3.1.10.3.1 provide information on the noise metrics used to evaluate effects of noise on land use and annoyance to persons.

Impulsive noise levels of 62 dB CDNL would remain within the boundary of the existing Oklahoma Impact Area on DTA-West. These noise levels are compatible with military training uses on military land. Areas exposed to peak noise levels exceeding 115 dB PK 15(met) extend beyond military land (see Figure 3-22). As the figure shows, a large area of State-owned land to the northeast of DTA-West is affected by peak noise levels above 115 dB PK 15(met). Table 3-37 shows the acres affected by peak noise levels under the RLOD proposal. The table indicates that current firing activity on DTA-West currently affects 21,841 acres outside the installation boundaries. An increase of about 550 acres would affect State land only. The affected area to the north of DTA-West is mostly forested with valuable moose habitat and good hunting opportunities. Within the noise exposure footprint is the “key hole” area between DTA-East and DTA-West. This area (7,290 acres) is composed primarily of private and BLM land. The area is also forested and essentially uninhabited. Some persons using this area may be annoyed by peak levels above 115 dB PK 15(met), but less than 130 dB PK 15(met), while engaging in outdoor activities (as indicated in Table 3-36). However, peak noise levels of 115 dB PK 15(met) already affect this area on a regular basis, and the change is relatively minor (less than 4 percent increase in non-military land), resulting in no adverse impact.

Table 3-37. Peak Noise Exposure Associated with the Realistic Live Ordnance Delivery Proposal

Location	Current 115 dB PK 15(met) Exposure (acres)	Proposed 115 dB PK 15(met) Exposure (acres)	Change (acres)
Military Land:	328,129	334,028	5,899
Non-military Land			
State	14,351	14,902	551
Private	4,068	4,068	0
BLM	1,895	1,895	0
Military-managed	1,527	1,527	0
Total Non-military	21,841	22,392	551
Total (all lands)	349,971	356,420	6,449

Key: BLM=Bureau of Land Management; dB = decibel.
Source: ADNR 2011-2.

Effects of Restricted Access on Military Land. When hazardous training and MFE operations use the proposed RLOD airspace and capabilities, civilians and nonparticipating persons would be excluded from training areas exposed to surface hazards. The proposed RLOD activities would restrict access to most of the training areas on the west side of DTA-West. Most of this training land is categorized as open use and limited use. This proposal would not change permitted public uses on DTA-West; however, the training schedule for RLOD would limit availability to about 60 percent of weekdays (i.e., 3 days). Generally, access would continue on weekends and in September. These areas are highly valued by a small number of local residents for various uses, including subsistence activities and recreation (discussed below). These users may be annoyed by reduced access or experience inconvenience if they must schedule their uses for times when military activities are not occurring. This would mostly affect uses (predominantly recreation and hunting) in TAs 538, 539, 540, 541, 542, 543, 544, and 545. The proposal would have no effect on portions of the Winter Trail that pass through existing impact areas, because they are off limits already. There is limited productive land use occurring on DTA-West (with no mining and agriculture, but some managed timber harvesting). Therefore, only minor impacts on non-military uses other than recreation on DTA-West would result. Impacts on non-military recreation uses of DTA-West are discussed separately, below under recreation.

Effects of Restricted Access on Non-military Lands. No public use would occur within WDZs when mission activities occur. Under Alternative A this would include about 163,630 acres of non-military land underlying the extended R-2202 airspace beyond the boundary of military land. As described in Section 3.2.10.1 and Table 3-31, there are several private and some State and Federal interests held on parcels within this land area. The proposed military training schedule for the RLOD would limit access for any commercial or personal purposes by about 60 percent of weekdays. In most cases this would make it infeasible to use the land for potential or intended productive purposes and would severely constrain availability for recreational uses. This would also disrupt any permanent habitation; however, there are no private parcels directly under the Alternative A airspace, and no continually occupied homesteads. Limited access would not impact the State surface management priority for “habitat” values, but would significantly affect availability for recreational use (see below).

Three easement/rights-of-way for USARAK and ADNR are located in the project area. One public trail (Donnelly Washburn) passes under the north end of the proposed extension of R-2202. This portion of trail would become inaccessible during RLOD training (potentially about 2 or 3 days each week), as would the greater segment of this trail (Winter Trail) that crosses DTA-West. This trail intersects the Little Delta River, which would serve as a natural trail when frozen in winter. Under this proposal, the portion of the Little Delta River under the restricted airspace would also be closed for safety purposes. However, this situation exists for current operations. The status of the existing open mineral order is unknown. Similarly, the status of any currently active mineral claims is not known, nor the potential of any nonactive claims. The location of 20 mining claims is within the proposed restricted airspace extension but outside of the largest WDZ for the RLOD. Uses that rely on daily access would not be feasible with more than a 50 percent reduction in access. Some types of commercial operations may need less than daily access and may have options for sustaining uses with a high degree of coordination with the proponent.

The Air Force has identified two flight avoidance areas over the mining claims on the north and south ends of the R-2202 expansion area as a mitigation for this proposal. This mitigation would allow any activities on the ground in those locations to continue, even when RLOD activities are taking place. This would minimize the potential impact on mining interests and claim holders. Access to the southern group of claims may be limited nonetheless (either by air or surface modes) when RLOD missions are active.

Two commercial use permits allow for guided trips to two cabin sites underlying the proposed R-2202 extension. These would remain accessible on most weekends and in September, coinciding with times

that are most popular for recreational activities and hunting in the affected area. For individuals holding these permits, reduced access could cause a high impact on their commercial interest for the duration of the current permit, causing a loss in revenues and opportunity to use public resources. Overall, exclusion of access to valid existing permits, leases, claims and other real estate interests is a potentially significant impact on specific individuals or the public. Coordination with ADNR is needed to determine if suitable arrangements can accommodate particular interests (such as schedule planning), or general public access. If not, then terms and conditions of a land use agreement or acquisition process must be negotiated prior to implementing this action.

Overall, restricted access may cause an adverse impact on existing leases, permits, and claims on State land, limited in extent to the few entities that hold these property interests.

In addition to uses associated with the parcels listed in [Table 3-31](#), many Alaskan residents use this area for hunting and other recreational and subsistence-type activities (even though this is a nonsubsistence area). The land is managed by ADNR for its habitat values that are the basis for these activities. Because of existing trails and proximity to Fairbanks this area has high value for hunting, fishing, and trapping (ADNR 2010). Access would normally continue on weekends and during September, the most popular time for outdoor activities, vacationing, camping and hunting. While this would minimize impacts on these uses and activities, access would be limited in other popular seasons, such as summer and winter. In addition, getting to remote locations using surface vehicles may be difficult in a 2-day period. Air access would remain an option into these areas for some individuals. To minimize impacts, coordination between military and public users could identify optimal patterns of use to enable reasonable access for public (non-military) uses. The action would not impact the habitat value of the area, and would therefore not conflict with management priority of ADNR. Overall, limited access would have an adverse and potentially significant impact on general land uses and access, but coordination and selected mitigations could reduce these to moderate levels. The Air Force will provide a more detailed CONOPS and Access and Safety Plan to ADNR for the Special Use Designation process. The plan will specify the location of closures, frequency and duration of closures, and methods to manage access when hazardous operations occur, with the purpose of providing maximum public access to ground evacuation areas and limiting closures to the shortest time possible in order to reduce impacts on multiple users of the affected area.

In order to establish persistent, exclusive use for hazardous military operations on State land (shown on [Figure 3-21](#) as RLOD A and RLOD A and B), ADNR would need to implement a regulatory reclassification of the affected land area through the State's Special Use Designation public process. The ADNR Special Use Designation would undergo a review process, including public meetings and input prior to approval. Following this, ADNR would propose a change in State regulations to codify the Special Use Designation. The resulting decision can be appealed by affected members of the public. A Range Safety and Management Plan detailing access control measures and roles and responsibilities would be prepared by the Air Force for ADNR approval following the State Special Use Designation.

Effects of Weapons Expenditures on Land Use. The Air Force would clean up and render safe any location where a munitions lands outside of a designated impact area. In some cases, munitions may penetrate the earth or land in an irretrievable location. The proposal includes the use of small (2-acre) temporary impact areas outside of the existing duded impact areas for inert munitions. These areas could over time develop some residual debris and some UXO in the vicinity of the selected site. This could add a surface hazard requiring restricted access to a small areas in the northwest and southeast part of DTA-West. This would remove this land from general use in the future. The quantity of land is a extremely small fraction of the military land and would have no effect on surrounding land. This would have a minimal impact on land use and recreation, but may require clean up when and if it is returned to the public domain. USAG-FWA would review selected target sites on DTA-West to ensure the location

avoids key infrastructure (both surface and underground) and land restricted by existing leases, permits, easements, and rights-of-way.

Public Access

Ground and air access and travel is currently permitted on DTA-West within the proposal area subject to temporary use restrictions with the exception of the Oklahoma Impact Area, which is an off-limits area. The ground evacuation area shown in [Figure 2-2](#) and [Figure 2-4](#) for R-2202 expansion would be off limits to all civilians and military personnel not participating in military operations during training activities. This analysis assumes that no access is allowed within any SDZ when activated for a training activity (about 90 to 150 days per year).

Military Land. Direct impacts on public ground access, including Donnelly Dome and Donnelly-Washburn Trails (both RS 2477 trails) and the Winter Trail, are expected on DTA-West under this alternative. An increase in training activities and MFEs would lead to more frequent closures of these trails and other ground access for military purposes. Impacts would be moderate, depending on the duration and timing of access closures. Portions of this trail pass through the DTA-West duded impact area so that they do not serve as through trails to locations to the south of DTA-West.

No charted airports are located within the project area on military lands. Therefore, no direct impacts on air access would occur. The restricted airspace would continue to affect public air access across R-2202 within the project area during activation. An increase in training activities and MFEs and the addition of WDZs would lead to more frequent airspace closures for military purposes. Indirect impacts on temporal and spatial availability of airspace to public aviation would be minor.

Non-military Land. Direct impacts on public ground access on non-military land within the project area would occur. Trails under the expanded R-2202, including Donnelly-Washburn Trail (an RS-2477 trail) and the Winter Trail, would be closed to civilians and nonparticipating military personnel during military training activities. This would result in a potentially significant adverse impact on primary public access routes into this area.

No charted airports are located within the project area on non-military lands. Therefore, no direct impacts on air access would occur. The portion of the proposed R-2202 airspace located over non-military land currently underlies the Eielson MOA, which currently experiences restrictions on air access. Training activities within the proposed airspace would lead to an increase in airspace closures for military purposes. Therefore, indirect impacts on temporal and spatial availability of airspace to public aviation would be moderate. The Air Force would continue to use the SUAIS and other communications to provide information on when airspace is active. It would be the responsibility of civil pilots to check on the status of MOAs prior to and during a general aviation flight.

Navigable and Public Waters. No navigable and public waters are located within the project site or vicinity. Therefore, no direct or indirect impacts on navigable and public waters would occur.

Recreation

Effects of Noise and Limited Access on Recreation. As described above, projected noise from weapons firing in the expanded airspace would not alter peak noise exposure perceptibly compared to current conditions. This would alter the degree of quietness found in this area for the purpose of recreation.

Training frequency and closures within the project area would increase under this alternative, including areas used for recreation on the west side of DTA-West. Training areas on the west side of DTA-West are currently accessible about 80 percent of the time on average, which would diminish to about 40 percent. While this is a high degree of change, the priority use for these lands is military. This would

make it more difficult for USAG-FWA to provide public access opportunities, resulting in a moderate adverse impact due to spatial and temporal availability of recreational uses in this part of DTA-West.

The affected area is located within GMU 20A. There is a moderate level of recreation activity on State lands underlying the Eielson MOA (Air Force 1997-1) and very high use of the land under the proposed restricted airspace extension for hunting. Primary recreational activities include sport hunting and fishing, ORRV use, snow machining, and cross-country skiing (Air Force 1997-1). The change in average noise levels in this area would not change appreciably. Impulsive noise over 62 dB CDNL would not extend off military land. This area would not experience peak noise over 115 dB PK 15(met). Limited access to this State land would have a significant impact on local hunting opportunities and resources.

During routine training, aircraft activities in any specific area would occur in low numbers and would generally be dispersed over broad geographic area underlying the Eielson MOA. With the new RLOD capability, aircraft would use flight paths that vary horizontally and vertically on a regular basis. These overflights may disturb ongoing recreation activities underlying these run-ins, but effects would be short term, consisting of isolated and infrequent overflights, and of low intensity (i.e., low numbers of aircraft). There would be no access for recreation during regular RLOD training times. This area is one of the most popular for moose hunting in Alaska, as indicated in the high harvest numbers for GMU 20A. This could have adverse impacts on persons who use this area frequently and preferentially for their recreational and hunting activities.

Indirect effects of changes in civilian ground and air access (reported in Section [3.1.1.2](#)) would affect spatial and temporal availability to specific areas, and associated recreational uses and activities including GMUs. The Air Force would provide advance schedules of training missions in R-2202 and the public would have access to information about MOA activation during scheduled training and/or the SUAIS, NOTAMs, and other communications methods, as appropriate. Advanced notice of military training schedules allows hunters and other public users to plan their activities in advance. While this does not eliminate the impact of restricted access, more predictable training times lessens the impact.

Overall, implementation of RLOD Alternative A would have potentially significant adverse impacts on land use, recreation, and access on State lands, but coordination and selected mitigations could reduce these to moderate levels.

3.2.10.3.2 Alternative B

Impacts on land use, public access, and recreation would be similar under Alternative B as those described for Alternative A (Section [3.2.10.3.1](#)). Differences are presented in the subsections that follow.

LAND STATUS, MANAGEMENT AND USE

Effects of Impulsive Noise on Public and Private Land Use. Under this alternative, JDAM GBU-32 inert ordnance would be added at Blair Lakes Impact Area but this would not cause any appreciable change in noise exposure levels TFTA, because inert weapons have no explosive charges. Operations at Oklahoma Impact Area on DTA-West and within the surrounding training areas would be the same or less as under Alternative A; therefore, noise exposure and effects on land use on DTA-West would be the same as described for Alternative A. Impulsive noise of 62 dB CDNL or greater and peak noise above 115 dB PK 15(met) do not extend into the areas under the proposed restricted airspace linking R-2202 and R-2211. Noise from impulsive sources in this area currently may be audible in some surrounding locations outside the military land. Any change resulting from the proposal would be negligible outside DTA-West and TFTA boundaries.

Effects of Restricted Access on Land Use. The primary impact resulting from this action is displacement of ongoing land uses. This includes existing subsurface interests and claims, and lack of access to areas with hazards during training times. [Table 3-31](#) presents surface and mineral estate interests affected by Alternative B.

There are no private parcels directly under the Alternative B airspace. Outside of the hazardous footprint areas, remote private parcels in two separate areas south of R-2211 along the Wood River, have access from the Bonnifield trail and an airstrip (with a 1,500-foot flight avoidance). A worst-case scenario would exclude access to the area between R-2211 and R-2202, if ingress roads and trails along the Richardson and Denali Highways were closed during training periods. This would preclude access for hunting on about 40 percent of days each year, except during September. As described for Alternative A, lack of access could make it difficult to use property interests and permits on State lands (listed in [Table 3-31](#)). Revoking valid claims and rights is governed by ADNR and may involve compensation to affected parties. Partial access may be unviable for some commercial uses (such as mining), resulting in financial loss or takings of a property interest.

Limited access could cause substantial disruption to access land along and south of the Wood River and on the north part of the Alaska Range. These represent potentially significant adverse indirect impacts on land management, ownership, and multiple uses. Road and trail closures would inhibit access to private parcels outside the WDZs. These locations may be accessible by air but this would involve circumnavigating around the enlarged block of restricted airspace. This would be inconvenient to private land holders south of the proposed RLOD operating areas but provide limited access.

[Table 3-31](#) lists the real-estate interests on non-military land. Alternative B has no interests that are additional to Alternative A. Therefore, impacts on these real estate interests would be similar to Alternative A. Even though several mineral orders are not within the footprint for the Alternative B airspace configuration, limited access would affect them as described for Alternative A. Only one commercial use permit allows for guided trips to a cabin site underlying the proposed R-2202 extension. This location would remain accessible on most weekends and in September, coinciding with times that are most popular for recreational hunting in the affected area. Notwithstanding, the impact on this single use could be moderate. Further coordination with ADNR on each of the existing property interests, including rights-of-way easements, could clarify methods to minimize impacts on these uses.

Many Alaskan residents use TFTA and the area underlying the proposed restricted airspace for hunting and other recreational and subsistence-type activities (even though this is a nonsubsistence area). Impacts would be similar to those described above for Alternative A. There is little active productive land uses occurring on TFTA (such as mining and agriculture). Timber harvesting could occur at times to avoid overlap with training activities, similar to other range management functions. Therefore, impacts on non-military (nonrecreational) uses are negligible. Overall, because this area is close to Fairbanks and has trail access, it is used and valued by some local residents for hunting and recreation; therefore, decreased access would have a moderate impact on its varied uses. The action would not impact the habitat value of the area, and would therefore not conflict with management priority of ADNR.

For Alternative B, the area underlying R-2211 outside the boundary of Blair Lakes Impact Area would experience new access hazards from RLOD activities. This would affect 7 percent (42,420 acres in portions of TA 205, 206 and 207) of the training areas that are generally accessible for recreational access (596,170 acres). TFTA is particularly popular for moose hunting, due to the high quality of that resource, proximity to Fairbanks population, and relative accessibility from Parks Highway, Fairbanks, and the Wood River. To limit the area of exclusion to just the new hazard footprint under R-2211 (42,420 acres), would require adjustments to the public recreation maps, to define a new intermittent exclusion area. Any future change in the delineation of closed-access areas on TFTA would be reflected on the USARTRAK

website and range recreation maps, and by posting signage or using features that are easily recognizable to persons on the ground. A worst case scenario would close access to all of the publicly accessible parts of TFTA on two or three days per week, and for 2-week periods during MFEs. The impact of this exclusion is somewhat reduced since the Air Force would not conduct RLOD training in September when hunting use is the highest. Overall, spatial and temporal limited access to 7 percent of TFTA would cause an adverse but not significant impact on recreational use and hunting on TFTA. Under the worst case, significant adverse impacts on multiple uses on military and non-military land would result.

Effects of Munitions Debris and UXO on Land Use. Similar to Alternative A, the Air Force would clean up and render safe any location where any munitions lands outside of a designated impact area. In some cases, munitions may penetrate the earth or land in an irretrievable location.

Public Access

Limitations on ground access and travel would similar to Alternative A. The ground evacuation area shown in [Figure 2-2](#) for the R-2211 expansion and areas under the new restricted airspace would be off limits to all civilians and military personnel not participating in military operations during training activities. This analysis assumes that no access is allowed within any SDZ when activated for a training activity (about 90 to 150 days per year).

Military Land. Direct impacts on public ground access, including Donnelly Dome and Donnelly-Washburn in DTA-West, and additionally, Bonnifield Trails (RS 2477 trails), Winter Trail, Tractor Trail, and an unnamed trail in and near TFTA. Public access to DTA-West would be similar. This would result in more frequent trails closures. Impacts would be moderate to high, depending on the duration and timing of access closures and the affected activities.

No chartered airports are located within the project area on military lands. Therefore, no direct impacts on air access would occur. The restricted airspace would continue to affect public air access through R-2202 and R-2011 within the project area when in use for RLOD. An increase in training activities and MFEs and the addition of WDZs would result in less availability of airspace to public aviation, causing inconvenience and indirect impacts on the activities dependent on air access in and around the proposal area.

Non-military Land. Reduced access to trails (listed above) would result in a significant adverse impact to surface access in the local area.

Access to public lands would be controlled using the regulatory guidance described in DoD guidance (including AR 350-2, AR 385-63 and AFI 13-212, USARAK Regulations 350-2, 190-13, and AFI 13-212 11th AF Supplement 1), as administered for existing range spaces, and in coordination with ADNR using mutually developed procedures as part of the State of Alaska's Special Use Designation process. As part of this, the Air Force would provide advance schedules of training missions in R-2202, and the public would have access to information about MOA activation during scheduled training through the SUAIS and other communications. This would allow recreational users to plan their activities to avoid times when military operations take place and somewhat reduce the potential for impacts on recreationists seeking quiet. A Range Safety and Management Plan detailing access control measures and roles and responsibilities would be prepared by the Air Force for ADNR approval following the State Special Use Designation.

No chartered airports are located within the project area on non-military lands. Therefore, no direct impacts on air access would occur. Non-military land within the project area is currently located under the Eielson MOA. Proposed training activities within the new restricted area and Eielson MOA would lead to an increase in airspace closures for military purposes. Therefore, indirect impacts on temporal and spatial

availability of airspace to public aviation are expected to moderate. The Air Force would continue to use the SUAIS in combination with other communications, as appropriate, to provide information on when airspace is active. It would be the responsibility of civil pilots to check on the status of restricted areas prior to and during a general aviation flight. Existing mitigation measures are provided in Section [3.3.10.4](#). These mitigation measures should be applied to Alternative B, where applicable.

Navigable and Public Waters. A portion of the Wood River bordering TFTA on the west is navigable. However, this stretch of river does not underlie the proposed airspace. Restricted access to trails may limit access to this portion of the river.

Recreation

Military Lands. Impacts from restricted access to DTA would be the same as described for Alternative A. Under Alternative B, limited access to Blair Lakes and the Bonnifield Trail would impact persons who use this area for recreation and hunting. Access would continue on weekends and in the month of September, as training schedules permit. Most of TFTA is outside the SDZs for the RLOD operations and could remain open for use. However, the entire TFTA may be unavailable for public use during RLOD training. Because TFTA is favored for moose hunting (due to its high moose population and closeness to Fairbanks) limited access (whether spatially or temporally) would have a potentially significant adverse impact on hunting and recreation. DTA-West would experience similar impacts on recreational as described for Alternative A.

Non-military Lands. Impacts on recreation underlying the new restricted airspace and R-2211 would be similar to those described for Alternative A. Closure would affect a larger area between DTA-West and TFTA under this alternative that supports widespread but general use by local residents (mostly for recreation and hunting). The area would remain accessible on weekends and in the month of September.

Indirect effects of changes in civilian ground and air access (reported in Section [3.1.1.2](#)) would affect access to areas south of the proposal area along the Wood River, Little Delta River, and northern slopes of the Alaska Range, and associated recreational uses and activities in GMU 20A. Pilots may circumnavigate the restricted airspace, with some inconvenience, but ground access would be substantially impeded, reducing the ability to use these popular areas for recreation, fishing, and hunting.

Overall, RLOD Alternative B would have potentially significant adverse impacts on land use and real estate interests, public access, and recreation in the directly and indirectly affected areas. Selective mitigations could reduce these impacts to less than significant.

3.2.10.3.3 No Action Alternative

Under the No Action Alternative, no expansion of SDZs or hazardous areas would result. There would be no change in munitions use or access to military or non-military areas. Therefore, no changes or additional impacts to existing land use, access or recreation conditions would occur.

3.2.10.4 Mitigations

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. The following mitigations are proposed to reduce these impacts.

- Land Use – Management
 - **ADNR Compliance Items.** The Air Force will provide support to ADNR throughout the Special Use Designation process. The Air Force will develop a CONOPS and an Access and Safety Plan for the exclusive use of State land to support RLOD. The Special Use

Designation process will identify areas and dates of closure and will have to indicate which activities are affected. The Access Plan will provide the maximum public use to the ground evacuation areas, closing such areas for the minimum period of time necessary to conduct such operations. The Access Plan (updated annually) will identify areas and dates of closure and will indicate which activities are affected. It will describe roles and responsibilities for securing the area, ensuring it is evacuated, publishing and posting closure notices, signs, and other media to advertise and alert public of the hazards, times, and locations.

- Land Use – Management, Access
 - **State Land/Leasehold Avoidance.** Comply with ADNR comments to avoid leasehold properties in the north and south corners of the proposed restricted area by adjusting the borders of the Alternative A airspace.

3.2.11 Infrastructure and Transportation

Transportation routes, electricity, water, sewage, and natural gas are necessary to support various missions, as well as to maintain the residences of military personnel. These resources are described further in the Affected Environment section below. Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for additional information regarding resources throughout this region.

3.2.11.1 Affected Environment

ELECTRICAL TRANSMISSION

This section presents proposed action specific to electrical transmission infrastructure and analyzes the electrical transmission impacts associated with the RLOD proposed action and alternatives. Golden Valley Electric Association (GVEA) provides electricity in the region. GVEA operates 3,131 miles of transmission and distribution lines and 35 substations. This electrical system is interconnected with Fort Wainwright, Eielson AFB, Fort Greely, the University of Alaska–Fairbanks, and all electrical utilities in the Alaska Railbelt that extends from Homer to Fairbanks. Peak load in 2009 was 200.5 megawatts (MW) (GVEA 2011).

Electrical distribution within DTA is limited to the area east of the Delta River. Even within that area, not all range facilities have electric power. DTA falls within the GVEA service area.

Currently no commercial power is available in TFTA. GVEA’s Northern Intertie is routed along the northwestern and northern sections of TFTA (GVEA 2011).

WATER SUPPLY AND WASTEWATER TREATMENT

This section presents proposed action specific to water supply and waste water infrastructure and analyzes the potential impacts associated with the RLOD proposed action and alternatives. Water in this area is produced from local wells and is treated for consumption (ADCCED 2011). All homes and group quarters are plumbed in this area (ADCCED2011). Regulations covering water appropriation are contained in 11 AAC 93.010-970. Neither the Alaska Constitution nor the Water Use Act differentiate between surface water and groundwater uses.

NATURAL GAS AND OIL PIPELINES

No natural gas or oil pipeline infrastructure is affected by the RLOD proposed action and alternatives.

TRANSPORTATION

Richardson Highway is the primary terrestrial transportation artery, providing access to Fairbanks and the statewide road system. Allen Airfield has a 7,500-foot asphalt runway but is restricted to military aircraft (ADCCED 2011).

Roads, Bridges, and Trails

No bridges are within the RLOD proposed action area. Approximately 10 miles of roadway is present within the RLOD project area boundaries. Meadows Road falls entirely within DTA underneath the R-2202 A/C/D footprint. Approximately 106 miles of trails are present within the RLOD project area boundaries. These trails fall within DTA, TFTA, or outside current DoD facility boundaries. Individual trails with their distances and names (where available) are presented in [Table 3-38](#).

Rail

No rail lines or associated railroad infrastructure intersects with the proposed action area.

Table 3-38. Trails in Realistic Live Ordnance Delivery Areas

Project Area	Miles	On Facility	Trail Name
R-2202A	5.294103	Donnelly Training Area	N/A
R-2202B	13.56297	Donnelly Training Area	N/A
R-2202B	6.637486	Donnelly Training Area	Winter Trail
R-2202C	18.85707	Donnelly Training Area	N/A
R-2202C	6.637486	Donnelly Training Area	Winter Trail
R-2202D	18.85707	Donnelly Training Area	N/A
R-2202D	6.637486	Donnelly Training Area	Winter Trail
R-2211	4.745159	N/A	Tractor Trail
R-2211	7.116253	Tanana Flats Training Area	N/A
R-2211	8.425428	Tanana Flats Training Area	Tractor Trail
R-2477	1.283	Donnelly Training Area	Donnelly-Washburn Trail
RLOD A and B	0.553512	N/A	N/A
RLOD A and B	5.027428	N/A	Winter Trail
RLOD B	4.043531	N/A	N/A

Key: N/A=Not Applicable; RLOD=Rural Lands Overlay District.

Source: ADNR 2009-2, 2009-3.

3.2.11.2 Impact Assessment Methodology

INFRASTRUCTURE

Potential impacts on infrastructure elements are assessed in terms of the effects of construction projects and personnel changes on existing service levels. Impacts on utilities are assessed with respect to the potential for disruption or improvement of current utility systems; for deterioration, obsolescence, or improvement of existing utility service levels; and for changes in existing utility safety levels. Impacts may arise from physical changes to utility corridors, construction activity, and changes in personnel and thus in demand for services.

TRANSPORTATION

To assess potential environmental consequences associated with transportation resources, increased utilization of the existing roadway system due to the potential increase of personnel is analyzed, as well as potential effects of construction activities. Impacts on the operational characteristics of these roadways are determined using levels of service and other applicable metrics.

3.2.11.3 Environmental Consequences

3.2.11.3.1 Alternative A (Preferred Alternative)

To support the targets, maintenance roads need to be in place. Currently the Richardson Highway is the primary road providing access to the State and local road system. Year 2030 traffic volumes are forecast along most segments of the Richardson Highway between 1,500 and 4,500 annual average daily traffic (AADT). AADT is an estimated number of vehicles traveling over a given road segment during one 24-hour day. Based on these forecast traffic volumes, a qualitative planning level assessment of the Richardson Highway by the Alaska Department of Transportation and Public Facilities (ADOT&PF) revealed no major roadway capacity constraints over the near- and long-term (ADOT&PF 2009; ADOT&PF 2010-1).

In addition, approximately 10 miles of roadway and 107 miles of trails are present within the RLOD project area boundaries. These trails fall within the current DTA, TFTA or outside current DoD facility and are available for upgrade and expansion.

Extensive rail access is planned for these areas with new rail lines are included in the Access to Joint Tanana Military Training Complex and the Denali Park Passenger Train Turnaround Track. The Northern Rail Extension project would construct a new line between North Pole and Big Delta (ADOT&PF 2010-1). Despite this infrastructure, there is a current lack of accessibility due to limited access roads within DTA.

Most permanent electrical infrastructure is within the general area is located at Fort Greely. In the past, if Fort Greely electrical loads exceed the 2.5-megavolt ampere (MVA) transformer rating, diesel generators were used to meet peak loads. Doyon Utilities recently constructed a new 138-kilovolt (kV) Switching Station, new 138 kV Substation with 20 MVA transformer to increase energy capacity at Fort Greely (Doyon 2011-1). Specific alternatives for electrical requirements for DTA are not developed to the point where specific decisions or plans can be made. The proposed 20-year vision for USARAK calls for increased power and fiber optic connectivity on the ranges (USARAK 2009-1). Power for scoring may be provided by generators or power lines, and communications may be transmitted by microwave or fiber optic cable.

No impact to water, sewer or natural gas or transmission lines are anticipated. Although primary access arteries would not be adversely impacted, and rail access would see a net positive impact, transportation access would continue to remain an issue within the DTA and TFTA.

3.2.11.3.2 Alternative B

Under Alternative B, impacts discussed are identical to those presented under Alternative A with the exception that the proposed 20-year vision for USARAK calls for improved access into TFTA (USARAK 2009-1).

3.2.11.3.3 No Action Alternative

No changes to existing infrastructure or transportation system conditions would occur under the No Action Alternative, and no additional impacts would occur.

3.2.11.4 Mitigations

This resource area is not impacted by this proposed action. No mitigations are identified for this resource.

3.2.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.2.12.1 Affected Environment

The proposed area for RLOD is in between TFTA and DTA along the northeastern-most corner of Denali Borough. The training area also covers a small portion of the northwestern border of Southeast Fairbanks Census Area and a small portion of the southern border of the FNSB. Therefore, the ROI for the Realistic Live Ordnance Training Proposed Alternative includes the portions of these two boroughs and one census area underneath the airspace as well as the surrounding communities.

POPULATION

The nearest cities to the proposed action are the city of Delta Junction and Big Delta CDP. Both locations are approximately 15 NM to the east; the city of Anderson and Healy CDP, more than 30 NM to the west; and the city of North Pole and Fairbanks, more than 30 NM to the north. The population in the ROI totaled 106,436 in 2010. The FNSB had the largest population of the three regions, 97,581 persons, while the Denali Borough had the smallest, 1,826 persons. Data developed through the use of GIS indicates that there are approximately 2 persons in the Denali Borough under Alternative A and Alternative B, within the extent of the defined census block under the restricted airspace; however, as stated in Section [3.2.10.3.1](#), Land Use and Recreation, there are no private parcels directly under the airspace and no continually occupied homesteads.

ECONOMIC ACTIVITY

In 2009 (the most recent data available), the Fairbanks North Star Borough had the largest total employment in the ROI, 58,761 jobs, while the Denali Borough had the smallest, 2,099 jobs. The Southeast Fairbanks Census Area had a total employment of 3,777, but had the fastest rate of employment of the three areas between 2001 and 2009.

The largest source of employment reported in the Denali Borough during 2009 was the Accommodation and Food Services industry (44 percent), followed by the government and government enterprises industry (18.4 percent) and the transportation and warehousing industry (6.1 percent). The largest source of employment in the Southeast Fairbanks Census Area was the government and government enterprises industry, which includes Federal, military, State, and local government. That industry accounts for approximately 23 percent of total employment. In the Fairbanks North Star Borough, during the same year, the largest source of employment reported was also the government and government enterprises industry (35.5 percent), followed by retail trade (10 percent) and the health care and social assistance industry (9 percent) (BEA 2011-1, 2011-2).

In 2009, the Southeast Fairbanks Census Area and the Fairbanks North Star Borough had a lower per capita income than the state of Alaska. The Denali Borough had a larger per capita income than the other

areas in the ROI and the state. Per capita income in the Southeast Fairbanks Census Area increased at a faster rate than that of the state and other areas in the ROI; the average annual increase was 7 percent between 2001 and 2009.

KEY INDUSTRIES

Recreation and Tourism

The Denali Borough, FNSB, and Southeast Fairbanks Census Area are part of the Interior Region of Alaska. This region also includes the Yukon-Koyukuk Census Area. The economic impacts of Alaska's visitor industry in the region during the 2008–2009 season was estimated to support 6,200 jobs and \$205 million in labor income. The visitor-related jobs in the region accounted for about 9 percent of regional employment and 6 percent of regional labor income. Visitors spent approximately \$519 million in the region. The Southcentral Region was the most popular region for visitors, followed by the Southeast Region and, third, by the Interior Alaska Region.

Air travel was the most important form of travel to the Interior Alaska Region. Traveling by air impacts the state's economy in the form of landing fees, fuel purchases, airline employee wages, and other purchases in support of airline operations. In a report by the State of Alaska, Department of Commerce, Community and Economic Development, visitor spending on air travel to enter/exit Interior Alaska totaled \$36.3 million during the period October 2008 to September 2009 (McDowell Group Inc. 2010).

Civilian Aviation

Civilian aviation contributes significantly to the local economy and is heavily relied upon for travel, safety, firefighting, recreation, hunting, mining, oil and gas development and supplies. For more-detailed information on civilian aviation in the ROI, see Section [3.2.1.1](#), Airspace Management and Use.

3.2.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.2.12.3 Environmental Consequences

3.2.12.3.1 Alternative A (Preferred Alternative)

During the public scoping period, concerns were expressed that expansion of the training areas and the use of live ordnance were not compatible with residential use. The proposed military training schedule for the RLOD would limit access for any commercial or personal purposes for up to 150 days per year for a maximum of 5 hours per day. The Air Force would have to verify that nonparticipating individuals were clear of the SDZ and the restricted airspace prior to commencement of training activities. Major commercial and residential uses in the area include: mining operations, recreation, subsistence, and aviation. Any access restrictions that would interrupt participation in these activities could result in additional costs from delays or rerouting, which, based on concerns expressed during the public scoping period, are anticipated to be significant. Implementation of mitigation measures, such as notifying the public of the time and dates of ground access restrictions in advance and restricting military training during the most popular months (e.g., September) for recreation and subsistence harvesting, could lessen the likelihood of potential economic impacts.

To mitigate potential impacts on mining interests in the proposal area, the Air Force has defined two avoidance areas within the proposed R-2202 expansion area overlying the mining area on the south and

north side of the airspace extension. Incorporation of these into the 11th AF Handbook would exclude these areas from surface danger zones and allow existing uses and activities to carry on without interruption.

3.2.12.3.2 Alternative B

Similar to Alternative A, potential economic impacts would be anticipated from a restriction in commercial and private access under Alternative B. The degree of economic impacts depend on many factors that are difficult to quantify due to a lack of available data. Based on public scoping comments, there is concern that expanding training areas and the use of live ordnance would not be compatible with residential uses and would result in socioeconomic impacts. Under Alternative B, the restricted area would be larger and thus, is anticipated to result in greater impacts than under Alternative A. Advanced notification of when ground access would be restricted and not activating the RLOD airspace and range in the month of September, the busiest month for recreation and subsistence harvests, could potentially lessen the likelihood of impacts on these uses and associated economic impacts.

3.2.12.3.3 No Action Alternative

Under the No Action Alternative, there would be no expansion of the footprint, associated WDZ, and hazard areas for ordnance delivery, and no use of such ordnance as to require an expanded footprint. Therefore, no changes or additional impacts to existing socioeconomic resource conditions would occur under this alternative.

3.2.12.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse impacts. The following preliminary mitigation is proposed to reduce socioeconomic impacts.

- **State Land/Leasehold Avoidance.** Comply with ADNR comments to avoid leasehold properties in the north and south corners of the proposed restricted area by adjusting the borders of the Alternative A airspace.

3.2.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.2.13.1 Affected Environment

The ROI for RLOD considered from the subsistence perspective includes those communities or areas in the vicinity of the expanded weapons safety footprint and the expanded restricted area. Portions of the proposed restricted area are located in Federal and State nonsubsistence areas.

In accordance with State regulations, the Joint Board of Fisheries and Game has identified areas in which dependence on subsistence is not a principal characteristic of the economy, culture, or way of life. These areas, defined in Alaska Statute 16.05.258 (c), have been determined on the basis of the costs of goods and services, availability of cash and resources, economic stability, and employment characteristics (ADFG 2011-10). The proposed location of the RLOD is partially within the State-identified Fairbanks Nonsubsistence Area (see [Figure 3-23](#)). As is the case with all State and private lands, this nonsubsistence area is not subject to the subsistence priority. Commercial and recreational hunting and fishing may be permitted, as discussed in detail in Section [3.2.10](#), Land Use.

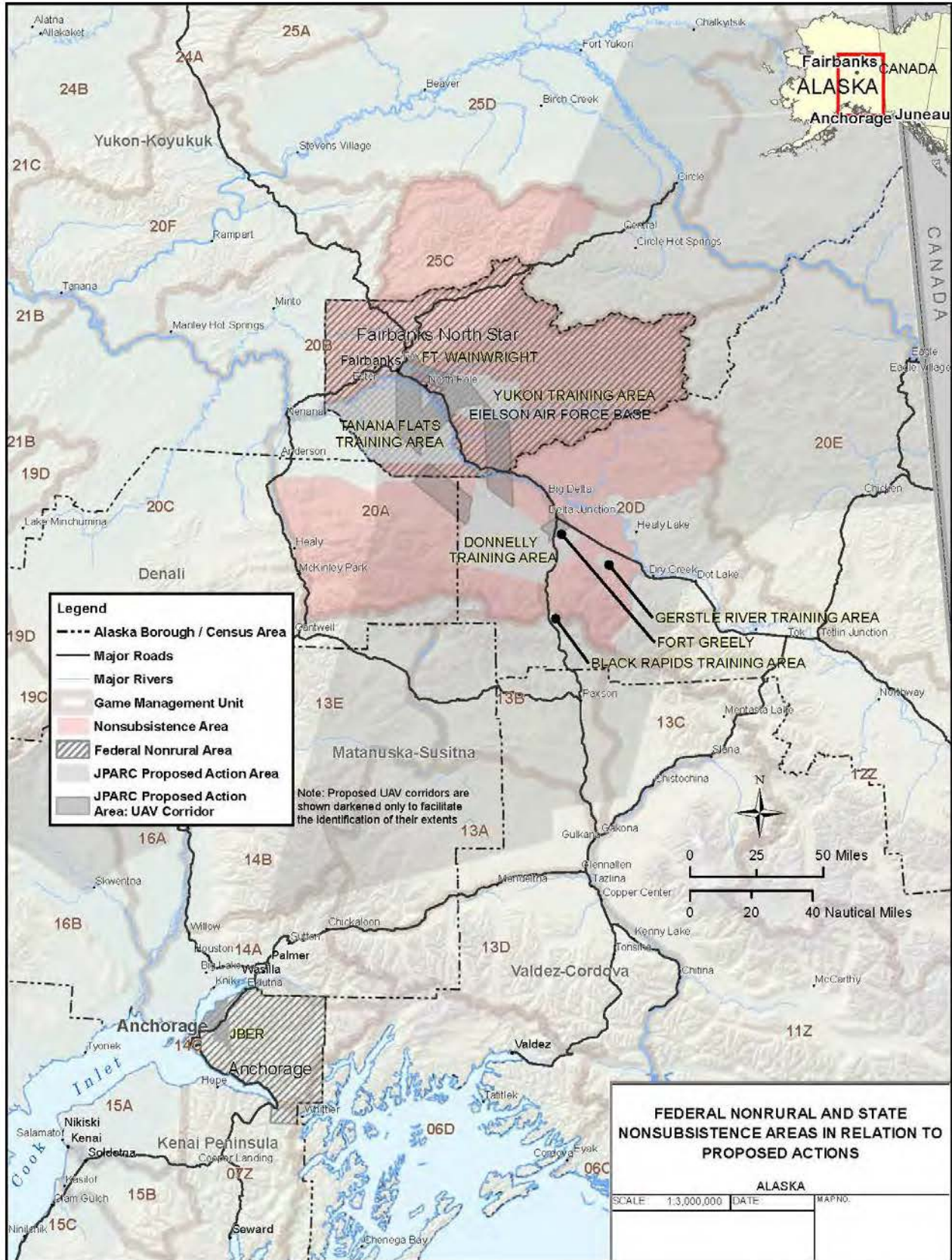


Figure 3-23. Federal Nonrural and State Nonsubsistence Areas in Relation to Proposed Actions
Source: ADFG 2010-2, ADFG 2011-1

Under Federal regulations, subsistence harvest is still permitted on Federal public lands. Subsistence-oriented communities nearest the proposed RLOD location are Big Delta and Delta Junction in the Southeast Fairbanks Census Area. Healy Lake, Dry Creek, and Dot Lake are also in the vicinity, and residents of these communities do have a history of harvesting subsistence resources on Federal public land in DTA and other areas in the vicinity of the proposed action (USARAK 2008-2). General subsistence characteristics of these communities are provided in Appendix B, *Definition of the Resources and Regulatory Settings*, in Table B-20.

[Figure 3-23](#) also shows the game management units in relation to the proposed actions. Information on subsistence harvests on Federal public land near these communities is not available.

3.2.13.2 Impact Assessment Methodology

The general methodology for evaluating subsistence is described in Section [3.1.13.2](#).

3.2.13.3 Environmental Consequences

For this proposed action, the communities of Healy Lake and Dot Lake are ranked as high in dependence on subsistence resources due to having a large percentage of the population participating in subsistence harvests, and due to the high percentage of Alaska Natives in the communities. Information on the percentage of participation in subsistence from the Dry Creek community was not available. However, as a conservative estimate, and because of Dry Creek's proximity to Dot Lake, it is assumed that the Dry Creek community is also high in dependence on subsistence resources. Based on the methodology provided in Section [3.1.13.2](#), Big Delta and Delta Junction are ranked as low in dependence on subsistence resources due to the proximity of those communities to the FNSB as an additional source of necessities and economics activity and due to the small share of Alaska Natives in the population with cultural requirements for subsistence resources. Information on the percentage of the population in Big Delta and Delta Junction participating in subsistence harvests was not available.

3.2.13.3.1 Alternative A (Preferred Alternative)

The RLOD proposed action would restrict ground access to areas currently available for subsistence harvesting by rural Alaska residents under Federal regulations. More details on these restrictions are provided in Section [2.1.1.3](#). For the communities of Healy Lake, Dot Lake, and Dry Creek, the amount of restricted ground access could be perceived as an impact on the harvesting of subsistence resources. To lessen the potential impact, the proposed new portion of R-2202 would not be scheduled in the month of September, one of the busiest months for subsistence hunting. Advanced notification of when the ground access would be restricted in order for individuals dependent on subsistence resources to plan for these closures may ameliorate the impact. Additionally, the Air Force would have to verify that nonparticipating individuals were clear of the SDZ and the restricted airspace prior to commencement of training activities. Additional discussion is provided in Sections [3.2.2.3.3](#), [3.2.7](#), and [3.2.10](#).

Impacts on civil aviation and airports in the vicinity of the proposed RLOD are discussed in detail in Sections [3.2.1](#) and [3.2.12](#), and impacts on wildlife and vegetation species in Section [3.2.8](#). When the proposed restricted airspace was active, civil aircraft would not be permitted to transit through the active airspace under either VFR or IFR. Civilian pilots would have to reroute around the active restricted airspace or wait until the airspace was no longer active. The delay in aircraft access may also result in a delay in access to subsistence resources. Therefore, persons requiring aircraft to access traditional subsistence areas may perceive such a delay as an impact. However, neither the potential impact from restricted ground access or restricted airspace would be a significant impact to subsistence resources as defined by ANILCA.

3.2.13.3.2 Alternative B

Impacts on subsistence resources would be more extensive under Alternative B than under Alternative A because ground access would be restricted over a larger area, and mandatory evacuations of nonparticipating individuals. However, with the measures described under Alternative A to minimize the impact, the potential impact from restricted ground access or restricted airspace would not be a significant impact to subsistence resources as defined by ANILCA.

3.2.13.3.3 No Action Alternative

Under the No Action Alternative, no additional airspace or expansion of SDZs is proposed. Individuals participating in subsistence in the nearby communities of Healy Lake, Dot Lake, and Dry Creek would be able to access the areas in order to harvest subsistence resources as it is currently practiced.

3.2.13.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse impacts. No mitigations are identified for this resource; however, mitigations that would have complimentary benefits for subsistence resources are presented in Section [3.2.10.4](#) (Land Use).

3.2.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.2.14.1 Affected Environment

The affected environment for the RLOD proposal includes two boroughs and one census area in which some portion of the proposal footprint is located. [Table 3-39](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children for areas comprising the proposal area. Note that the table characterizes existing population groups in the affected environment at a general level of detail and does not indicate whether the proposal would create an environmental justice effect.

The average percent minority in the proposal area ranges from 11.6 percent in Denali Borough to 25.9 percent in FNSB, which is lower than the 35.9 percent average for the State of Alaska. The average percent low-income ranges from 6.1 percent in Denali Borough to 11.6 percent in Southeast Fairbanks Census Area, compared to 9.6 percent for the State of Alaska. The average percent Alaska Native ranges from 3.6 percent in Denali Borough to 11.5 percent in Southeast Fairbanks Census Area, less than the 14.8 percent average for the State. The average percent children ranges from 22.5 percent in Denali Borough to 26.3 percent in Southeast Fairbanks Census Area, similar to the 26.4 percent average for the State.

Table 3-39. Minority Population, Low-Income Population and Children by Area

Realistic Live Ordinance Delivery					
Area	Total Population	Percent Low-Income	Percent Minority	Percent Alaska Native	Percent Children
Fairbanks North Star Borough	97,581	8.0	25.9	7.0	25.6
Denali Borough	1,826	6.1	11.6	3.6	22.5
Southeast Fairbanks Census Area	7,029	11.6	21.3	11.5	26.3
State of Alaska	710,231	9.6	35.9	14.8	26.4

Note: Except for the low-income data, which are based on the 2005-2009 American Community Survey conducted by the Census, numbers represent 2010 decennial Census data.

Source: USCB 2010-1, 2010-2.

3.2.14.2 Impact Assessment Methodology

General methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#).

3.2.14.3 Environmental Consequences

For RLOD Alternatives A and B, resources with potential for unavoidable significant adverse impacts that are evaluated below for environmental justice include land use (Section [3.2.10.3](#)) and socioeconomics (Section [3.2.12.3](#)).

3.2.14.3.1 Alternative A (Preferred Alternative)

This alternative would expand R-2202 to the west, utilize targets in the Oklahoma Impact Area in DTA, and establish two new target areas in DTA, although the locations of the target areas have not been established yet.

Land Use (Section [3.2.10.3](#)). Significant adverse land use impacts that may be unavoidable include reduction in surface access to two recreational trails under expanded R-2202 and exclusion of the public from popular public lands and hunting areas including a prime moose hunting area. These recreation-related land use impacts would be borne by the general public and not primarily borne by minority or low-income persons. There would be no disproportionately high and adverse health or environmental effects on minority or low-income persons or children.

Socioeconomics (Section 3.2.12.3). The proposed military training schedule for the RLOD would limit access for any commercial or personal purposes for up to 150 days per year for a maximum of 5 hours per day. Nonparticipating individuals would have to be clear of the SDZ and the restricted airspace prior to commencement of training activities. Commercial interests and uses in the area include mining claims, recreation, subsistence, and civil aviation. Any access restrictions and delays on these activities could result in economic impacts. The economic impacts of a user being delayed or required to use an area outside the proposed SDZ when active cannot be quantified due to the many factors to be considered in estimating such impacts and the lack of available data. However, the range of uses and locations affected would avoid impacts being primarily borne by minority and low-income populations. No disproportionately high and adverse environmental or health effects on minority and low-income populations or children would occur.

3.2.14.3.2 Alternative B

This alternative would establish a new restricted area linking two existing restricted areas, use the Blair Lakes Impact Area in DTA, and establish two new target areas in DTA as in Alternative A.

Land Use. Alternative B has more potential to affect private property owners, mostly south of the proposal footprint, because the new restricted airspace would require persons to fly from Fairbanks around the restricted airspace. The State also has more disposal land in that area that could become private. Otherwise Alternative B is similar to A and likewise, significant land use impacts would not create disproportionately high and adverse environmental or health effects on minority and low-income populations or children.

Socioeconomics. Under Alternative B, the restricted area would be larger and thus is anticipated to result in greater economic impacts than under Alternative A, but similar to Alternative A, no disproportionately high and adverse environmental or health effects on minority and low-income populations or children would result from these socioeconomic impacts.

3.2.14.3.3 No Action Alternative

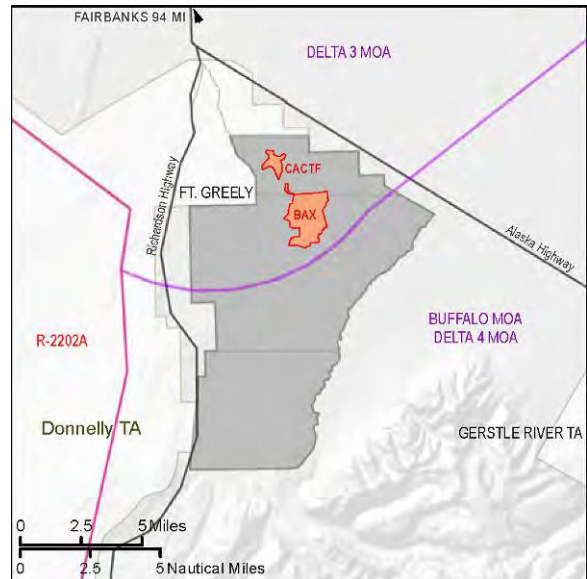
There would be no additional disproportionately high and adverse environmental and health effects on minority and low-income populations or children from the No Action Alternative, because restricted airspace would remain as currently configured and no additional airspace or expansion of SDZs or other hazard zones is proposed.

3.2.14.4 Mitigations

No mitigations are identified for this resource.

3.3 BATTLE AREA COMPLEX (BAX) RESTRICTED AREA (DEFINITIVE)

This proposal would build on existing facilities and would add a restricted area over the BAX and Combined Arms Collective Training Facility (CACTF) to allow participation by multiple functions—ground and air forces working together. Existing use of the BAX is currently very constrained in terms of the types, levels, and intensity of training that can be undertaken. The footprint for the BAX proposal overlies land that is withdrawn and managed for military use. (Refer to the gray-shaded area in the map to the right.) This action involves changes to military airspace and utilizes underlying land to support Army and joint training associated with weapons training exercises using primarily inert munitions. Because this action does not directly affect non-military land and involves no ground-disturbing construction, impacts on physical, water, cultural, and socioeconomic resources are expected to be low. In response to future mission change and force structure modernization, it is likely that the Army and other Services currently training in Alaska will be required to adapt their training and testing on JPARC lands and ranges. The Army will evaluate any additional modernization and enhancement of JPARC capabilities based on future service requirements in accordance with NEPA.



Following the impact assessment for each resource, the final mitigations are listed that have been selected by the Army and Air Force to avoid, reduce, or implement management actions for potential significant adverse impacts from implementing the proposed action. These are included to provide the public and other agencies with necessary information on the final mitigations proposed by the Army and Air Force.

3.3.1 Airspace Management and Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.

3.3.1.1 Affected Environment

The following describes the representative baseline use of all military and civil airspace within the region encompassed by the restricted areas proposed for Alternatives A and B shown in [Figure 3-24](#) and [Figure 3-25](#), respectively. These figures show this proposed airspace relative to the aeronautical features depicted on the Fairbanks and Anchorage Sectional Charts and the Alaska IFR Enroute High Altitude (H-1) Chart for the areas potentially affected by this proposal.

MILITARY AIRSPACE USE

Restricted Areas

The airspace proposed for the BAX restricted area encompasses most of the existing BAX Controlled Firing Area (CFA) shown in [Figure 3-24](#). Helicopter training is conducted in the CFA in support of ground activities, however, this training does not include aerial gunnery, rockets, bombing, tactical live fire, or other hazardous activities since FAA regulations only permit the conduct of such activities in a restricted area. Therefore, most USARAK helicopter hazardous operations are conducted in Yukon Training Area (YTA), TFTA, and DTA on target areas contained within restricted airspace. Helicopters typically use direct corridors between Ladd Army Airfield (AAF), Fort Wainwright and these three training areas. The corridors connecting Ladd AAF and Eielson AFB with both TFTA and YTA intersect the Glenn and Richardson Highway VFR corridors.

DTA consists of DTA-East and DTA-West, with most of DTA-West lying within R-2202 A and B. Data reflected in the *EIS for Stationing and Training of Increased Aviation Assets Within Alaska* (USARAK 2009-1) indicate an annual average of approximately 923 fixed- and rotary-wing aircraft sorties originating from Allen AAF conducted close air support (CAS), aerial gunnery, rockets, bombing, tactical live fire, demolitions, and lasers within R-2202 A, B, C, and D (Fort Greely 2012). An annual average of 3,775 fixed- and rotary-wing aircraft sorties originate from Ladd AAF to conduct similar mission activities in R-2205 at YTA located within R-2205 (USARAK 2009-1).

The ROD for this EIS and subsequent aircraft relocation actions has increased the number of helicopters based at Ladd AAF from 40 to 72. It is estimated that the number of operations will double both at the airfield and within the R-2202 and R-2205 training areas. With the proposed establishment of the BAX restricted area, it is estimated that approximately 70 percent of the helicopter live-fire sorties would be over the BAX with the remainder along the Delta River and DTA-West (R-2202) training areas utilizing the impact areas for dud-producing munitions. A small percentage (less than 5 percent) of these operations would be CAS provided by Air Force aircraft. Both the north and south subdivisions of the proposed BAX restricted area would be activated together to provide a backdrop for live-fire operations in DTA-East. Otherwise, that southern portion would not be activated and, therefore, available for other aviation uses. Approximately 60 percent of the BAX operations would occur below 6,000 feet AGL thus minimizing the need to activate the mid and upper altitude layers shown in [Figure 3-24](#) (USARAK 2009-1; Houpt 2011).

Other Military Airspace Uses

Other military airspace uses includes both the SUA in the region and the Allen AAF Class D airspace which overlaps the northern portion of the existing CFA and would do so with the northern portion of the proposed BAX Restricted Area. This Class D airspace extends from the surface to 3,800 feet MSL within a 6.3 mile radius of the Allen AAF, excluding those portions within R-2202A and R-2202C and below 700 feet AGL within defined boundaries around the Delta Junction Airport. Local procedures outline the coordination requirements for conducting operations at Allen AAF and within the Class D airspace relative to those flight activities planned and scheduled at the BAX/CACTF within the BAX CFA. Other military airspace uses described in [Section 3.3.1](#) would not be affected by this proposal and are not discussed further in this proposal analysis.

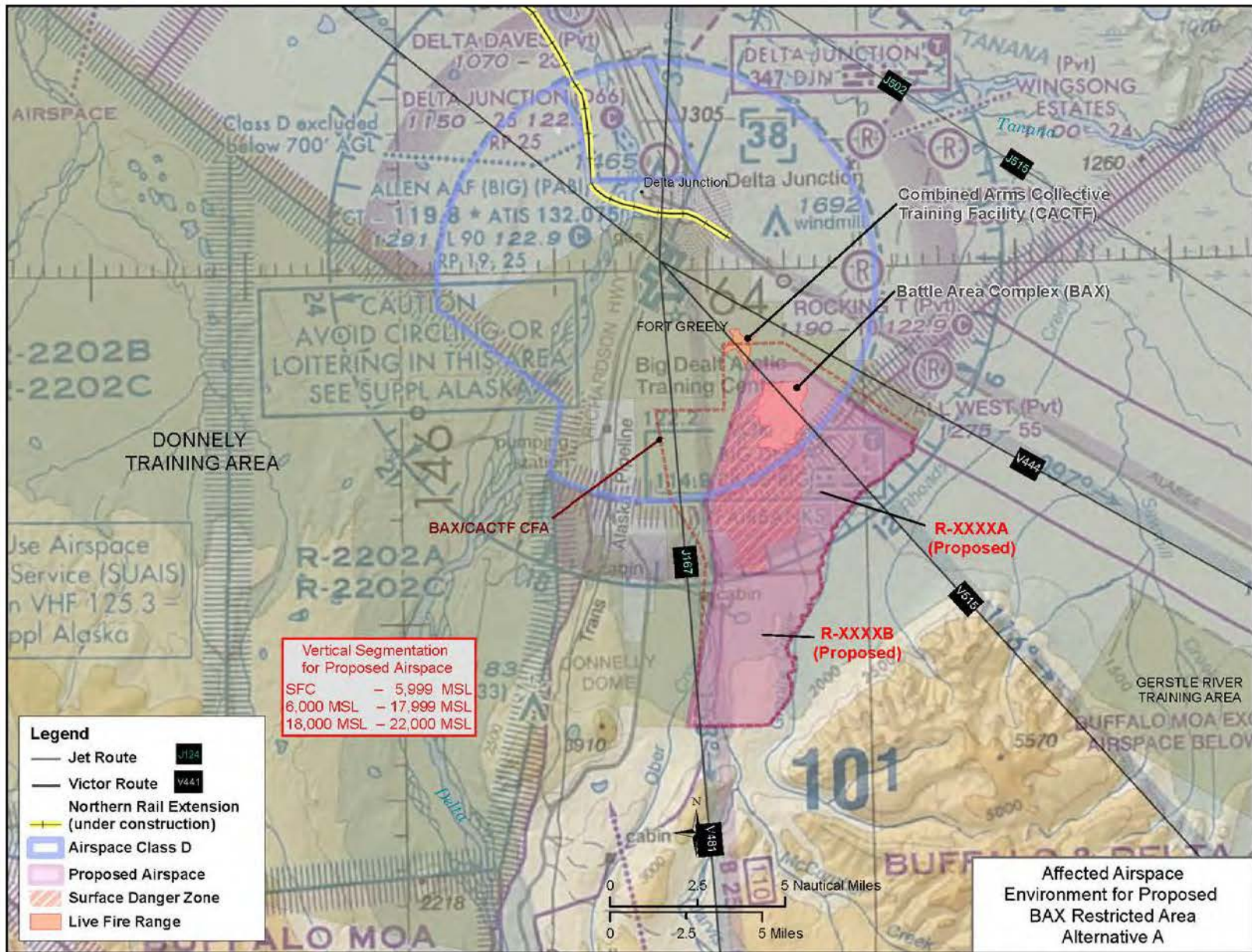


Figure 3-24. Affected Airspace Environment for Proposed Battle Area Complex Restricted Areas – Alternative A

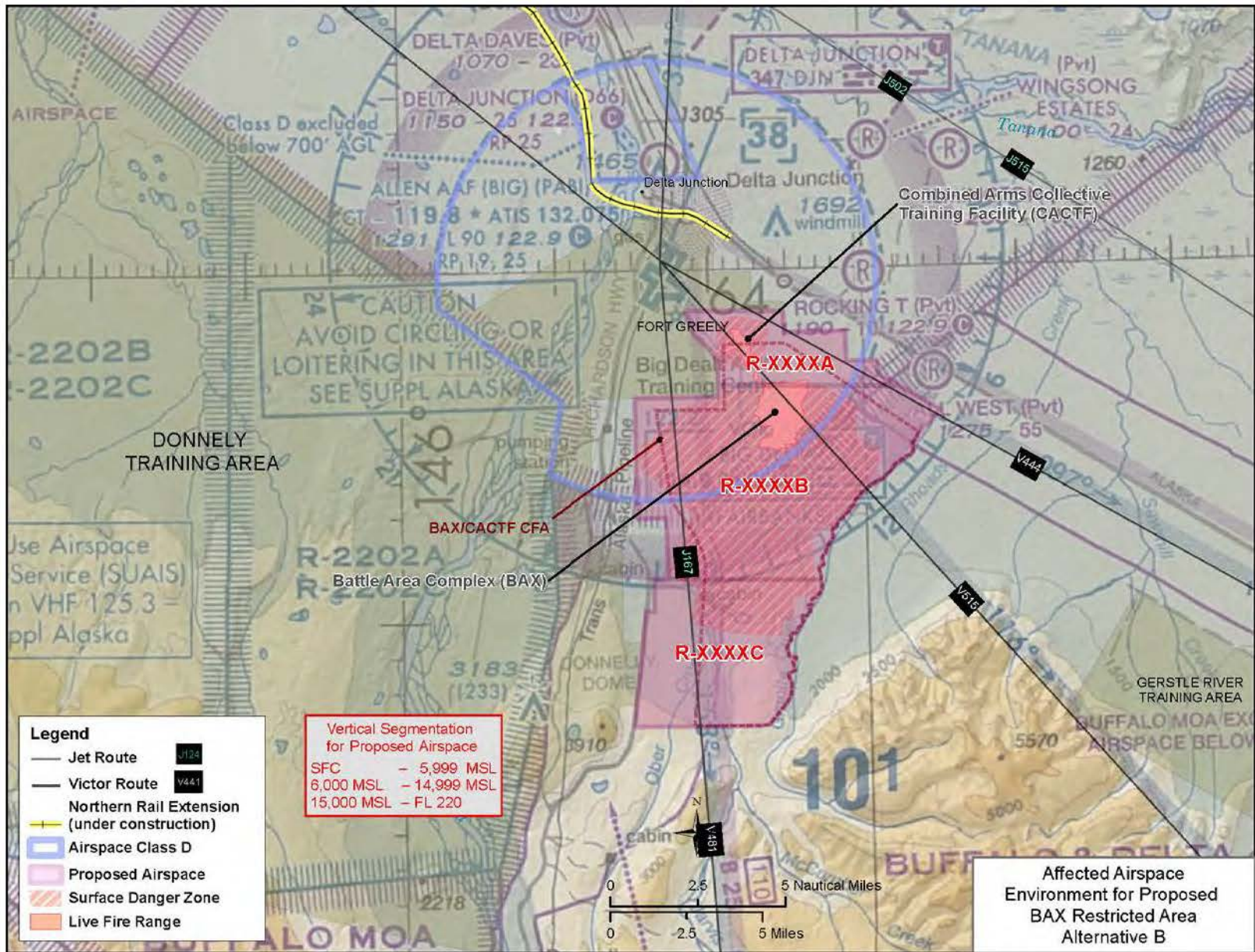


Figure 3-25. Affected Airspace Environment for Proposed Battle Area Complex Restricted Areas – Alternative B

CIVIL AVIATION AIRSPACE USE

As discussed below, those general aviation activities discussed in Section [3.3.1](#) occur within the areas encompassed by this airspace proposal.

Federal Airways

Those Federal airways transiting near or within the airspace proposed for the BAX Restricted Area include V481/T226/B25, V515, V444/T232, and A2-15. The current CFA use has minimal effects on the FAA's reported low average usage of these routes, as reflected in [Table 3-40](#).

Table 3-40. Air Traffic Route Use Within Battle Area Complex Affected Environment

Route	Typical Minimum Altitude Assigned by Air Traffic Control (feet mean sea level)	Average Daily Use
V444/T232 A2/A15	8,000	2
V481/T226/B25	6,000	3
V515	12,000	0
J-167	Climbing/descending phase of flight to FL380	3

Jet and RNAV Routes

Jet route J167 crosses the west boundary of the existing CFA and within the proposed restricted area as shown in [Figure 3-24](#) and [Figure 3-25](#). Current CFA use has little effect on the few daily, high-altitude flights that operate along this route.

VFR Air Traffic

The VFR air traffic activities discussed in Section [3.1.1.1](#) are also a factor in this proposed airspace environment. The area proposed for the BAX restricted area is adjacent to the Alaska Highway flyway. USARAK helicopters typically transit between the airfields and training areas at 500 feet AGL, and above and across the Glenn and Richardson Highway VFR corridors at points where they may interact with VFR aircraft.

USARAK provides scheduled and real-time information on their operations through coordination with local civilian aviation interests and the Air Force to reduce potential conflicts with other military and civil air traffic. This information is available through the Fairbanks FSS, NOTAMs, the SUAIS, and ERC. USARAK also participates in the ACMAC meetings and invites the FAA, Air Force, and general aviation representatives to the quarterly Aviation Safety Standard Council meetings as means of informing the civil and military aviation communities of exercises and other training activities that may have increased operations in the affected environment (USARAK 2009-1).

Public Airports and Chartered Private Airfields

The airfields in close proximity to the proposed BAX restricted area include the Delta Junction public airport and the private Rocking T and All West airfields. No operations data are available for these airfields, however, their relatively low use is not currently affected by military operations in the BAX CFA.

3.3.1.2 Impact Assessment Methodology

The methodology described in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.1, was considered, as appropriate, to assess potential impacts of this proposed action on other airspace uses in the affected region.

3.3.1.3 Environmental Consequences

3.3.1.3.1 Alternative A

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The proposed restricted area would cover much of the same airspace currently established as the BAX CFA. This restricted airspace would be subdivided into north and south sectors and stratified into three layers (surface up to but not including 6,000 feet MSL, 6,000 feet MSL up to but not including FL180, and FL180–220). Only those sectors/altitudes would be activated as required to support the type of mission activities to be conducted. It is estimated that the low sector alone would be used approximately 60 percent of the time, with inclusion of the mid and higher altitudes the other 40 percent. The north sector would be activated the majority of the time since most attack profiles on the BAX/CACTF would be conducted within this northern sector. Since a company-level live-fire event will always maneuver from north to the south, the south sector would be activated when needed to provide additional protective airspace for those mission activities and maneuvers that could extend beyond the northern sector.

Aviation activities would increase slightly in the BAX restricted area above current levels, as it is estimated that approximately 70 percent of the USARAK helicopter operations currently conducted in R-2202 would be performed in the BAX restricted area. Air Force aircraft conduct a limited number of CAS missions throughout the year for Army ground-based activities in the BAX CFA and it is anticipated that such operations would occur in the future with establishment of a restricted area.

Daily use of the proposed BAX restricted area for Joint Combined Arms Live Fire (JCALF) activities would normally occur up to 12 hours per training day from 7:00 a.m. to 7:00 p.m. local time, Monday through Friday, unless stipulated by NOTAM for other times of use. Information provided in Chapter [2.0](#) for this proposal indicates the projected annual days of use for the different types of training and capabilities noted. It is estimated that this annual range utilization would be approximately 238 days, which is not cumulative since different training activities may be scheduled and conducted within this airspace on the same day. The scheduled and real-time use of this restricted area would be available via the SUAIS and other aforementioned advisory services.

CIVIL AVIATION AIRSPACE USE

This airspace proposal has the potential to have adverse effects on the different civil aviation uses in the affected environment as discussed below.

Federal Airways

Federal airways V481 and V515 transit through portions of the proposed BAX restricted area while the V444 and A2-15 airway widths would overlap the northeast boundary of R-XXXXA as shown in [Figure 3-24](#). The FAA's reported average use of these airways is listed in [Table 3-40](#). There may be minimal to moderate impacts on these airways during those time periods when the mid (6,000 feet MSL – FL180) altitude sector is in use. This may cause flight delays or require the FAA to route IFR air traffic

around this active airspace. The extent of these potential impacts and consideration of mitigation measures will be examined by the FAA and USARAK in the FAA's aeronautical study if this alternative is selected in the Record of Decision for inclusion in the aeronautical proposal to ensure airway traffic and Fairbanks arriving/departing aircraft are not adversely affected.

Jet/RNAV Routes

Air traffic operating along J167 above the higher altitude sector (FL180–220) of this proposed restricted area should not be affected by this proposal. There may be minimal impacts on this route traffic if necessary for Anchorage ARTCC to alter the course of flight for any route traffic that is climbing or descending through those altitudes when the high sector is in use.

VFR Air Traffic

This proposal to establish restricted airspace in an area that currently permits VFR air traffic access through the CFA may have moderate to significant impacts on this aviation community. The proposed BAX restricted area would encompass much of the current CFA airspace which borders portions of the Richardson and Alaska Highway VFR flyways. Currently, live-fire activities are suspended when weather, terrain, or other conditions may require a nonparticipating aircraft operating along these flyways to alter its course to fly through the CFA. While any frequent need to transit the CFA in this manner can be an inconvenience for all concerned, this does provide a viable option for VFR air traffic to consider as flight conditions may dictate. Therefore, this restricted area would limit such options when this airspace is in use. The extent of any impacts on VFR flights through this area would depend on the daily time frames the individual north/south sectors and different altitude layers are activated. This scheduled use would be publicized through the SUAIS and other advisory services for pilot consideration when planning any flights through this region. Concerns raised by the VFR aviation community over the potential impacts of this proposal would be included among those examined by the FAA, USARAK, and the affected stakeholders to determine how such impacts could be minimized. Existing mitigations would continue to be relevant in addressing potential impacts of this airspace proposal. USARAK would also examine communications coverage within the affected areas to expand situational awareness of the restricted area uses for other nonparticipating air traffic operating within this region.

Public Airports and Private Airfields

The Delta Junction public airport and the All West, Rocking T, Remington, and Wingsong Estates private airfields are located within 10-15 miles of the proposed restricted area. There would be no direct impacts on these airfields except for the restrictions discussed above for VFR air traffic operating between these locations and destinations south and east of this restricted airspace.

3.3.1.3.2 Alternative B (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The proposed restricted area would include and extend beyond the northern and western boundaries of the existing BAX CFA to more fully encompass the protective airspace needed for all hazardous air and ground activities planned for future use of this complex. To more effectively and selectively schedule on the required use of this proposed restricted area, it would be subdivided differently than Alternative A to include R-XXXXA (north), R-XXXXB (central), and R-XXXXC (south) with the altitudes stratified from the surface up to but not including 6,000 feet MSL; 6,000 feet MSL up to but not including 15,000 feet MSL; and 15,000 feet MSL to FL220. Only those sectors/altitudes would be activated as required to

support mission activities within the individual range target areas. As discussed for Alternative A, it is estimated that only the low altitudes (below 6,000 feet MSL) would be needed approximately 60 percent of the time with all three layers being used the other 40 percent. The A/B restricted area subdivisions would be used the majority of the time for live-fire maneuvering in a southerly direction within those two areas. R-XXXXC would be scheduled as needed to provide additional protective airspace. No firing takes place in that that southern area.

Aviation activities would be the same as described for Alternative A with a large portion of the USARAK helicopter operations currently performed in R-2202 being relocated to the BAX restricted area in the future if this proposal is adopted. Daily use would be up to 12 hours per day between 7:00 a.m. and 7:00 p.m. local time, Monday through Friday, with other times as stipulated by NOTAM as required for JCALF activities. As described for Alternative A, it is estimated that the annual range utilization within these restricted areas would be approximately 238 days.

CIVIL AVIATION AIRSPACE USE

As discussed below, those general aviation activities discussed in Section [3.3.1](#) occur within the areas encompassed by this airspace proposal.

Federal Airways

This Alternative would more fully encompass those Federal airways shown in [Figure 3-24](#) and discussed in Alternative A as potentially affected by creation of a restricted area over the BAX. As noted for that alternative, the relatively few daily average flights currently flown along these airways should not be affected when only the low-altitude sector (below 6,000 feet MSL) is in use. However, there could be moderate impacts on these routes when not available for use during the periods that all restricted area sectors/altitudes are active. The significance of any impacts would depend on IFR air traffic needs for those routes and the extent to which the FAA would have to delay or reroute this traffic to avoid this active airspace. Such impacts and mitigations would be examined and discussed with USARAK in more depth in the FAA's study of the preferred alternative for establishing a BAX restricted area.

Jet and RNAV Routes

Jet/RNAV Route J167 crosses the west boundary of the proposed R-XXXXB and R-XXXXC. As noted for Alternative A, air traffic operating along this route above FL220 would not be affected by the restricted area use unless it is otherwise climbing or descending through the lower altitudes during the times this airspace is active. In such cases, any potential effects on this traffic could likely be minimized through ATC avoidance of this restricted airspace. The potential effects that any BAX restricted area proposal may have on this IFR air traffic would also be examined by the FAA and USARAK in the FAA's aeronautical study if this alternative is selected in the Record of Decision for inclusion in the aeronautical proposal.

VFR Air Traffic

The VFR air traffic flight activities discussed in Section [3.1.1.1](#) and Alternative A as being potentially affected by establishment of a BAX restricted area in this environment may be of somewhat greater concern under the Alternative B proposal. The proposed BAX restricted area for this alternative would extend slightly within the Alaska and Richardson Highway VFR corridor boundaries. While these VFR corridors provide sufficient lateral airspace for flying through flyways, this proposed action may limit VFR pilots' options for altering their flight paths within these corridors if weather conditions or other factors may dictate when this restricted area is active. During those periods when only the low sector is active, VFR aircraft would also have the option of overflying this airspace above 6,000 feet MSL. The

extent to which the concerns expressed in the scoping comments for this proposal may be problematic for VFR air traffic through this region and would be examined by USARAK and the FAA during the FAA's aeronautical study if this alternative is selected in the Record of Decision for inclusion in the aeronautical proposal. As noted for Alternative A, existing mitigations would continue to be relevant in addressing the potential impacts of this alternative while USARAK would also examine means of enhancing situational awareness of their airspace uses for other nonparticipating aircraft operating within this area.

USARAK provides scheduled and real-time information on their operations through coordination with local civilian aviation interests and the Air Force to reduce potential conflicts with other military and civil air traffic. This information is available through the Fairbanks FSS, NOTAMs, the SUAIS, and ERC. USARAK also participates in the ACMAC meetings and invites the FAA, Air Force, and general aviation representatives to the quarterly Aviation Safety Standard Council meetings as a means of informing the civil and military aviation communities of exercises and other training activities that may have increased operations in the affected environment (USARAK 2009-1). Such interactions with all aviation concerns would continue to play a key role in discussing and resolving issues of mutual interest affecting military and civilian airspace uses for the existing and proposed new SUA.

Public Airports and Chartered Private Airfields

The airfields in proximity to the proposed BAX restricted area include the Delta Junction public airport and the private Rocking T and All West airfields. No operations data are available for these airfields; however, their relatively low use is not currently affected by military operations in the BAX CFA.

The standing flight safety procedures addressed in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.3.3.1, for current flight training activities within this airspace would continue, as appropriate, to serve as the standard for minimizing impacts on other military and civil aviation airspace uses in the affected environment. Any specific impacts or limitations the preferred airspace proposal may have on IFR and VFR air traffic would be examined by USARAK and the FAA in the FAA's aeronautical study if this alternative is selected in the Record of Decision for inclusion in the aeronautical proposal, along with subsequent consultations with USARAK and civil aviation concerns on those operational mitigations that may be needed to help minimize impacts.

3.3.1.3.3 No Action Alternative

The BAX CFA would continue to be used for current USARAK activities while allowing nonparticipating aircraft access through this active CFA, and no additional airspace impacts would occur.

3.3.1.4 Mitigations

The preceding analysis of effects has identified potential adverse impacts on airspace management. The following mitigations are proposed to reduce these impacts.

- Pending the FAA's study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals.
- Pursue manning and funding for any enhancements required to expand situational awareness for air traffic in and around training areas for general and military aviation. Complete an internal study to identify coverage gaps in new SUAs and restricted airspace. One possible alternative is the establishment of a U.S. Army Airspace Information Center.

3.3.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.3.2.1 Affected Environment

Representative baseline conditions at the BAX include training of two Stryker Brigade Combat Teams (SBCT). Under baseline conditions, Stryker vehicles fire approximately 3,200 rounds of inert 105-mm ammunition annually, and approximately 20 percent of this ammunition is fired after 10:00 p.m. Time-averaged and peak noise levels reflecting baseline munitions training do not exceed 62 dB CDNL and 115 dB PK 15(met), respectively, in areas outside of range boundaries as shown in [Figure 3-26](#) and [Figure 3-27](#) (BAX is the range in the northeastern quadrant of the range). The BAX is designated as a nondudded range, and no dud-producing munitions are permitted. Munitions training noise is generated by the firing of rounds, but the rounds do not detonate on impact. Small-arms training is also conducted at the BAX. Noise generated during small-arms training is substantially less intense than heavy- weapons noise in the same area and was not modeled quantitatively as part of this analysis. Small-arms noise attenuates to levels not generally considered to be problematic prior to reaching the nearest range boundary, which is approximately 2 miles from the BAX.

Ground and air vehicles are another source of noise in the BAX. CAS training is conducted by manned fixed- and rotary-wing aircraft as well as small unmanned aerial vehicles (UAVs). However, aviation assets are not currently permitted to deliver munitions on the BAX, and flying operations are not conducted at a frequency sufficient to result in time-averaged noise levels exceeding 65 dB DNL (USARAK 2006-1). Ground vehicles used in the BAX generate elevated noise levels in the immediate vicinity of the vehicle. However, ground vehicle noise levels are less intense than noise levels generated by aircraft and munitions usage in the same areas and are not considered in detail in this analysis (see Appendix E, *Noise*, Figure E-1, Table E-2, and Table E-4).

3.3.2.2 Impact Assessment Methodology

Noise from large weapons and munitions was assessed by the same methods used to assess such noise for the RLOD (see Section [3.2.2](#)). At the BAX, heavy-weapons training noise overshadows noise generated by small arms, and, therefore, small-arms noise was not analyzed quantitatively in this EIS. Small arms are defined as munitions of .50 caliber and smaller. Impacts of munitions and aviation noise are assessed using the same methods described for RLOD and the Fox 3 MOA Expansion/Paxon MOA actions. Noise impacts would be considered significant if noise levels exceeding 130 dB PK 15(met) or 62 dB CDNL were to impact areas not owned by the DoD and that were not already affected by these noise levels under baseline conditions.

3.3.2.3 Environmental Consequences

3.3.2.3.1 Alternative A

Under Alternative A, the new restricted area airspace established at the BAX would permit indirect fire and CAS training that cannot be accomplished safely under baseline conditions. The BAX is a nondudded range; therefore, no dud-producing munitions would be used. The number of rounds of each type of munition fired under baseline conditions and the proposed action are listed in Appendix E, *Noise*, in Table E-9 and Table E-10. Time-averaged and peak noise levels generated by munitions firing are shown in [Figure 3-26](#) and [Figure 3-27](#). Noise levels exceeding 62 dB CDNL or 130 dB PK 15(met) would not extend beyond range boundaries. Aircraft operations in the BAX area may increase relative to baseline operations tempo, but time averaged noise levels would not be expected to exceed 65 dB L_{dnmr} . Supersonic flying operations would not be permitted in the BAX Restricted Area airspace. Noise impacts would not exceed the significance thresholds established for this action.

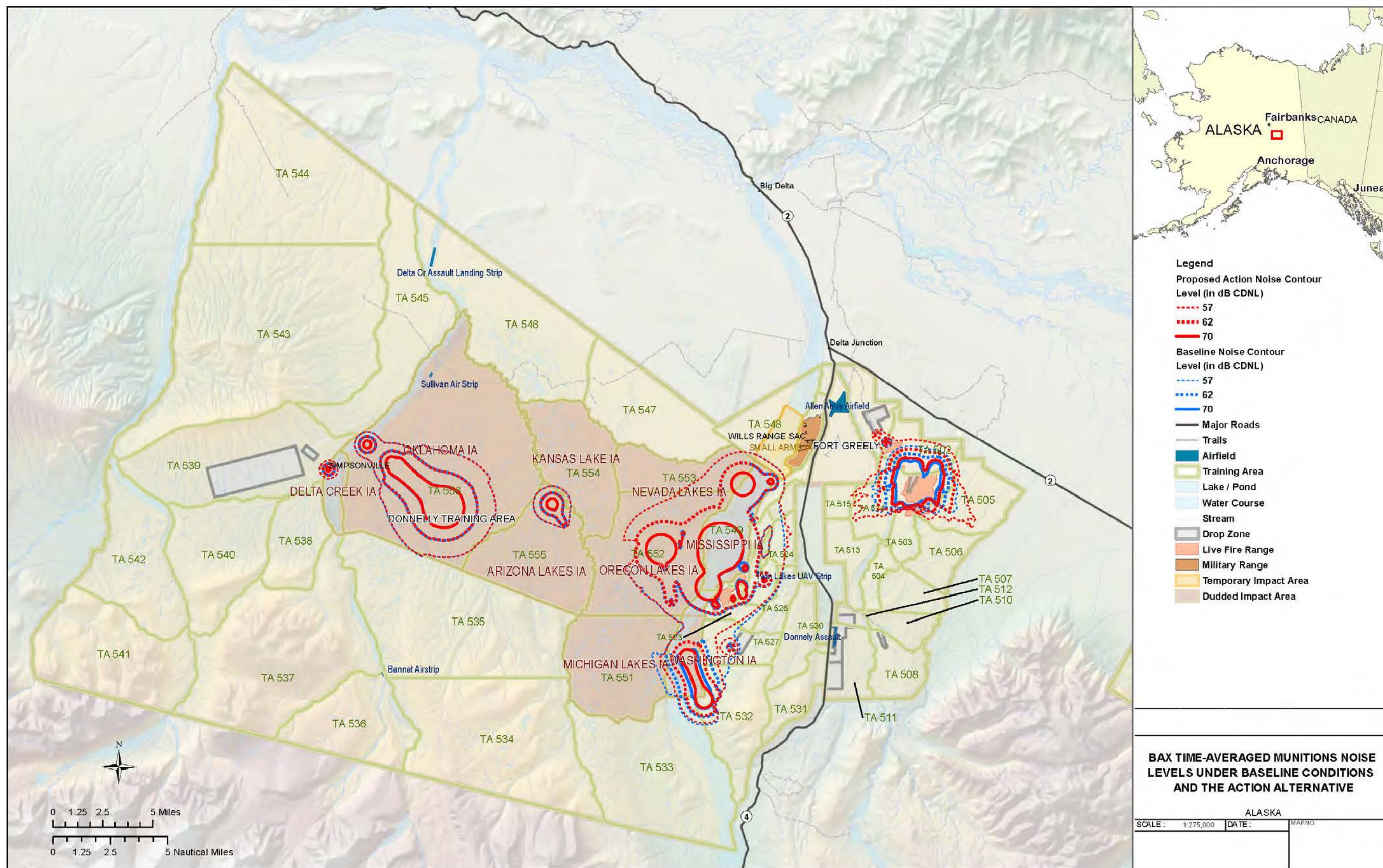


Figure 3-26. Battle Area Complex Time-Averaged Munitions Noise Levels Under Baseline Conditions and the Action Alternative

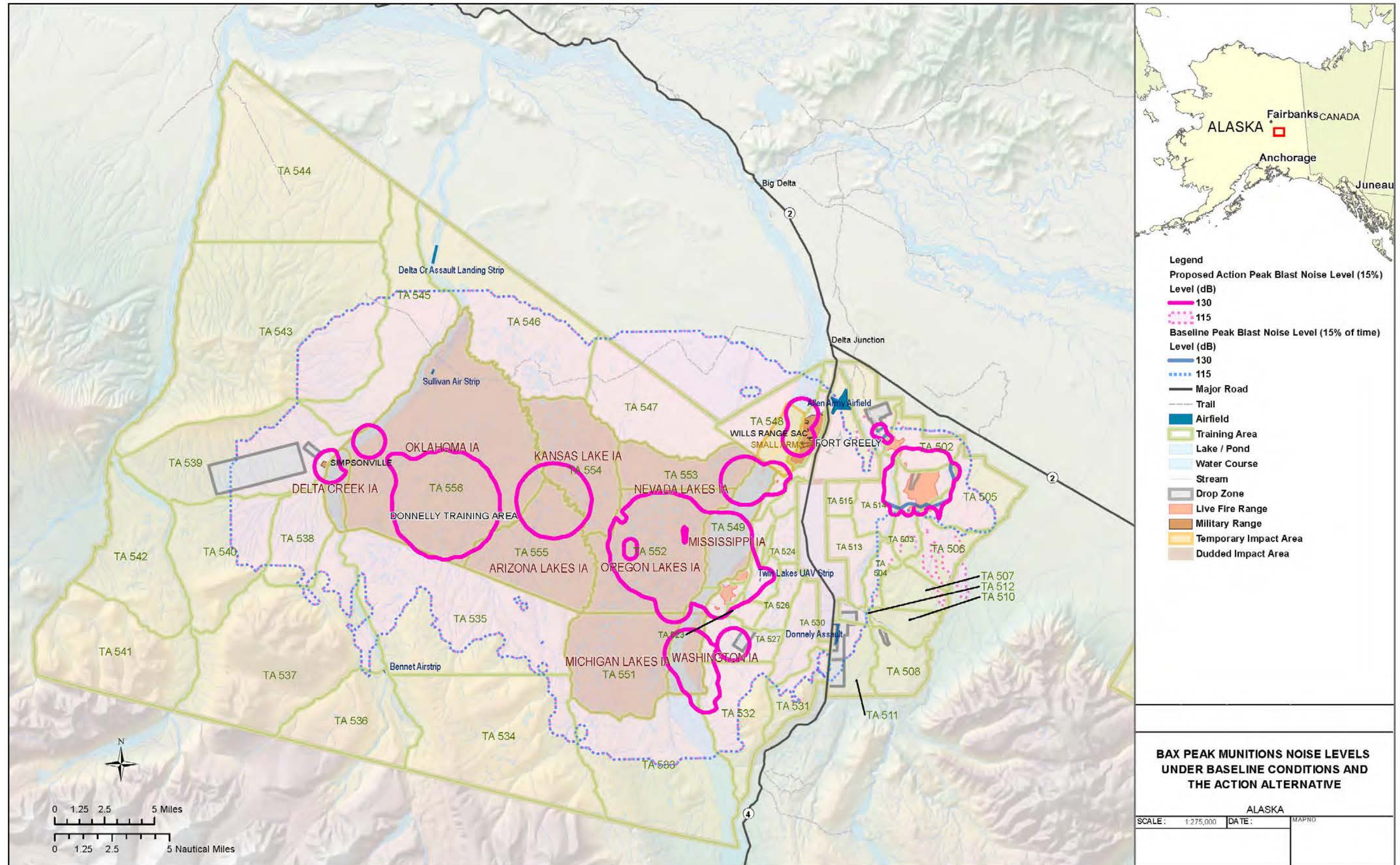


Figure 3-27. Battle Area Complex Peak Munitions Noise Levels Under Baseline Conditions and the Action Alternative

3.3.2.3.2 Alternative B (Preferred Alternative)

Under Alternative B, a restricted area would be created that would be larger than the restricted area created under Alternative A. The additional restricted area airspace would permit additional weapons employment flexibility. Munitions noise levels would be the same under Alternative B as they would be under Alternative A as the same munitions types, numbers of rounds fired, firing locations, and target locations would be used. The additional restricted area airspace would also provide a slightly larger area in which aircraft could conduct close-air-support and other training activities. Aircraft operations would be expected to be the same as under Alternative A, and noise levels in the proposed Restricted Area airspace would not be expected to exceed 65 dB L_{dnmr} . Supersonic flying operations would not be permitted in the BAX Restricted Area airspace. Noise impacts do not exceed the significance thresholds established for this action.

3.3.2.3.3 No Action Alternative

Under the No Action Alternative, no changes to munitions usage or aircraft activity would occur. Noise levels would remain as they are under current existing conditions.

3.3.2.4 Mitigations

The preceding analysis of effects has identified potential changes to the noise environment. These impacts are not considered significant, and no mitigations are proposed. USARAK would continue to follow existing mitigation practices under all proposed actions. These measures include implementation of USARAK Range Regulation 350-2, public notification of late night firing, and operation of a 24-hour feedback line to collect comments or complaints regarding noise (USARAK 2011).

3.3.3 Safety

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.3.

3.3.3.1 Affected Environment

FLIGHT SAFETY

Flight safety risks involving aircraft mishaps and near-miss/midair collisions are somewhat lower for rotary wing aircraft than previously discussed for fixed-wing aircraft due to their slower speeds and the more confined airspace in which they train. On the other hand, the potential for bird/wildlife-aircraft strikes can be greater than fixed-wing aircraft since the lower altitudes typically flown by helicopters and related noise effects can unexpectedly cause birds to flush out of their nesting places. The USARAK Safety Office indicates that the greater risk for rotary wing aircraft bird strikes is with black ravens during the winter months. This Office also indicated that there have been no Class A mishaps in Alaska over the past 3 fiscal years and no reported bird strikes in either the airfield or training environment during the past 6 to 8 years (Calhoun 2012). As deployed USARAK aircraft return from overseas, increased flight activities in Alaska could increase the potential for bird strikes and other safety risks.

USARAK has established programs and procedures to help ensure their flight operations do not conflict with civil or other military airspace uses. Specific initiatives include (1) providing information via NOTAMs and the SUAIS to alert civil and other military users of scheduled airspace and exercise activities; (2) attending ACMAC meetings and conducting Aviation Safety Standard Council meetings to discuss areas of mutual interest with FAA, military, and civil aviation representatives; and (3) enforcing USARAK policies/doctrines governing aviation and range safety. Bird strike hazards are also well-

managed as part of the Army's flight safety procedures and as a BASH program for increasing pilot awareness of bird/wildlife activities in the areas where helicopter operations are normally conducted.

USARAK Regulation 95-1 (USARAK 2004-2) and Army SOPs stipulate those safety practices aircrews must follow when planning and conducting flight missions. They include altitude restrictions for avoiding noise-sensitive areas, populated areas, livestock, dwellings, and other sensitive areas. The minimum altitude for flights off the military reservation is 500 feet above the highest obstacle (weather permitting), unless a daytime aerial reconnaissance flight has been completed for the intended route to note any noise-sensitive areas or hazards to be avoided. USARAK procedures and the coordination effected with Air Force and civil aviation interests, as necessary, help reduce any potential conflicts within the airspace commonly used by both military and civil aviation aircraft.

GROUND SAFETY

The ROI for ground safety is DTA-East. For this alternative, the environment affected by activities involved in range safety and control, UXO and munitions safety, public access control, and fire and emergency response would not differ from that previously described for RLOD Alternative A in Section [3.2.3.1](#).

3.3.3.2 Impact Assessment Methodology

FLIGHT SAFETY

The impact assessment methodology discussed in Section [3.1.3.2](#) was used to address the potential impacts of this proposal.

GROUND SAFETY

The impact assessment methodology for this proposal is the same as that described in Section [3.2.3.2](#).

3.3.3.3 Environmental Consequences

3.3.3.3.1 Alternative A

FLIGHT SAFETY

The majority of the flight activities to be conducted in this airspace would be USARAK helicopters operating to/from and within this proposed restricted area. The potential for aircraft mishaps, near misses/midair collisions, bird-aircraft strikes, and other flight safety risks would be minimal. The potential for any near miss/midair collision within the restricted area would be negligible since nonparticipating aircraft would not be permitted in this restricted airspace when active. Those measures currently used by USARAK to maintain safe operating distances from ground obstacles and other military and civil aircraft would continue to be used as a standard for ensuring flight safety is maintained for all concerned. The active status of this restricted area would be available through the SUAIS and other available advisory services. USARAK would also maintain bird awareness programs to address potential bird and wildlife strike hazards that may exist within the affected areas.

GROUND SAFETY

Range Safety and Control – There are no environmental impacts associated with range safety and control for this alternative not previously discussed under Section [3.2.3.3.2](#). Consequently, significant impacts are not expected to occur.

Unexploded Ordnance and Munitions Safety – There are no environmental impacts associated with UXO and munitions safety for this alternative not previously discussed under Section [3.2.3.3.2](#). Consequently, significant impacts are not expected to occur.

Public Access Control – There are no environmental impacts associated with public access control for this alternative not previously discussed under Section [3.2.3.3.2](#). Consequently, significant impacts are not expected to occur.

Fire and Emergency Response – There are no environmental impacts associated with fire and emergency response for this alternative not previously discussed under Section [3.2.3.3.2](#). Consequently, significant impacts are not expected to occur.

3.3.3.3.2 Alternative B (Preferred Alternative)

FLIGHT SAFETY

Flight safety risks within the more extended restricted area proposed for this alternative would be generally the same as discussed for Alternative A. The majority of the flight activities would be USARAK helicopters operating to/from and within this proposed restricted area in which aircraft mishaps, near misses/mid-air collisions, bird-aircraft strikes, and other flight safety risks would be minimal. Those measures discussed in Section [3.3.3.1](#) would continued to be used and expanded as needed to promote flight safety for all concerned.

GROUND SAFETY

Under Alternative B, the proposed restricted area extends beyond the boundaries proposed for Alternative A. Existing procedures for Range Safety and Control, Unexploded Ordnance and Munitions Safety, Public Access Control, and Fire and Emergency Response would be employed in operations within the BAX and CACTF CFA boundaries. Consequently, significant impacts are not expected to occur.

3.3.3.3.3 No Action Alternative

FLIGHT SAFETY

The No Action Alternative would not result in any changes or additional impacts to the existing CFA airspace environment, flight conditions, and safety programs currently associated with this airspace use.

GROUND SAFETY

No change in ground operations would occur under the No Action Alternative and therefore, no additional impacts on public health and safety would occur.

3.3.3.4 Mitigations

FLIGHT SAFETY

The standing USARAK measures noted in Section [3.3.1.4](#) would also serve, as appropriate for this restricted area proposal, to mitigate potential flight safety risks associated with future operations in the airspace. As noted for the Airspace Management mitigations (Section [3.3.1.4](#)), the need for specific measures to minimize any impacts on flight safety would be examined by the FAA and USARAK in the FAA's aeronautical study if this alternative is selected in the Record of Decision for inclusion in the aeronautical proposal and addressed with USARAK and the affected aviation interests.

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. The following mitigation is proposed to reduce flight safety impacts.

- Maintain respective bird awareness programs to address potential bird and wildlife hazards that may exist.

GROUND SAFETY

The standing USARAK measures discussed in Section [3.2.3.3.1](#) would serve to mitigate potential ground safety risks.

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. The following mitigations are proposed to reduce ground safety impacts.

- The Army will expand enforcement to control trespass in DTA-East for the expanded operations.
- Continue fire management mitigations in accordance with current Army and USARAK regulations on the BAX.

3.3.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.3.4.1 Affected Environment

The proposed BAX restricted area is within Southeast Fairbanks Census Area, Alaska, which is in attainment of all the NAAQS. Table B-12 in Appendix B, Section B.4.3, provides a summary of the estimated 2008 annual emissions for Southeast Fairbanks Census Area.

3.3.4.2 Impact Assessment Methodology

The air quality analysis followed the methodology described in Appendix B, Section B.4.5. The proposed action would not result in major changes in aircraft operations in the area or to the amount of ordnance delivered from baseline levels.

PSD CLASS I AREA IMPACT ANALYSIS

The closest PSD Class I area to the proposed action area is Denali National Park, which is approximately 90 miles from the proposed BAX area. Potential impacts that would occur due to the BAX action are discussed below.

3.3.4.3 Environmental Consequences

3.3.4.3.1 Alternative A

CONSTRUCTION

There would be no construction activities associated with the BAX airspace action alternatives.

OPERATIONS

The new airspace proposed in both action Alternatives A and B, would allow sorties and munitions expenditures that are currently taking place in the DTA to take place in the BAX. The DTA is located in the Denali Borough and the Southeast Fairbanks Census Area, which are both in attainment of all

NAAQS. The area proposed for the addition of the BAX airspace is adjacent to the DTA in Southeast Fairbanks Census Area and which is in attainment of all NAAQS. Thus, the relocation of the sorties would not create a net increase in criteria pollutant or HAP emissions, or chaff use, and operation of the BAX under the proposed action would result in less-than-significant air quality impacts. The BAX is located slightly further from Denali National Park than the DTA; thus, the proposed action alternatives would not have any negative impacts on air quality or visibility in nearby Denali National Park.

3.3.4.3.2 Alternative B (Preferred Alternative)

Impacts would be the same as those described for Alternative A.

3.3.4.3.3 No Action Alternative

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at R-2202. Therefore, the No Action Alternative would not result in any additional air quality impacts.

3.3.4.4 Mitigations

Since the impacts from the BAX are expected to be insignificant, no actions to reduce air quality impacts are being proposed.

3.3.5 Physical Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5. The proposed action involves the addition of a new restricted area over the existing BAX. Other than new firing points in the northwestern portion of the restricted area, the proposed action does not require any additional land, the loss of which would potentially affect physical resources. Given that the proposed action involves minimal to no disturbance of no new or additional land surface, no beneficial or adverse impacts on physical resources within the study area of this proposed action are expected to occur.

3.3.6 Water Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6.

3.3.6.1 Affected Environment

The BAX is east of Jarvis Creek on the glacial outwash fan that formed where Jarvis Creek flows out of the end moraines of the Delta glaciations. The outwash fan is a broad, gently sloping platform. Jarvis Creek is subject to overbank flooding mainly due to aufeis-caused overflows. There are numerous shallow lakes and ponds within the BAX. The surface water quality of Jarvis Creek meets all State water quality standards (USARAK 2006-1).

3.3.6.2 Impact Assessment Methodology

The general methodology for evaluating water resources is described in Section [3.2.6.2](#).

3.3.6.3 Environmental Consequences

3.3.6.3.1 Alternative A

The proposed action adds additional restricted area airspace designations to accommodate different types of ordnance use and provide for the safety of civilian air traffic. The ground-disturbing impacts of munitions usage at the existing target arrays and areas of vehicle ground maneuvering were permitted and subject to NEPA analysis in the 2006 *Final Environmental Impact Statement for the Construction and Operation of a Battle Area Complex and a Combined Arms Collective Training Facility within U.S. Army Training Lands in Alaska* (USARAK 2006-1). In addition, four firing points and thirteen target points would be added within the restricted area ([Figure 2-7](#)). Inert ordnance, without high explosives, would be used at the training areas. Therefore explosive residues would not create impacts at the target points. However, the use of munitions would leave low levels of propellant residues at the firing points. Trace amounts (parts per million levels) of propellant components such as 2,4 dinitrotoulene (2,4-DNT) and nitroglycerine would be deposited at the four additional firing points. Nitroglycerine degrades readily and is not persistent. The compound 2,4-DNT degrades more slowly but is not very mobile. Sampling at similar firing points within the DTA has detected low parts per million concentrations of 2,4-DNT (median value of 0.5 parts per million [ppm]) in the soil but not in the surface or groundwater. However, the compound 2,4-DNT is a carcinogenic compound and potentially can contaminate groundwater. The State of Alaska clean up levels are 0.005 ppm for 2,4-DNT to protect groundwater (USACE 2004). Therefore, over time 2,4-DNT concentrations could accumulate at the firing points and concentrations could potential exceed soil clean-up levels. Therefore, there is a potential for adverse impacts to groundwater quality. With mitigation and management actions identified in [Section 3.3.6.4](#), the adverse impacts would be reduced to not significant.

3.3.6.3.2 Alternative B (Preferred Alternative)

The proposed restricted area over the BAX and CACTF in DTA-East under this alternative would extend beyond the boundaries proposed for Alternative A in order to encompass the BAX and CACTF boundaries. The impacts from the additional firing points and targets are the same as described in Alternative A.

3.3.6.3.3 No Action Alternative

Under the No Action Alternative the munitions usage at the existing target arrays and vehicle maneuvering would be the same as existing condition as described in the NEPA analysis in 2006 (USARAK 2006-1) and no additional impacts would occur.

3.3.6.4 Mitigations

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. The following mitigation is proposed to reduce these impacts.

- The Army may augment the effort for their existing program to identify possible munitions contamination at training areas on DTA-East. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams.

3.3.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.3.7.1 Affected Environment

The proposed action involves the addition of a new restricted area over the existing BAX. Other than new firing points in the northwestern portion of the restricted area, the proposed action does not require any additional land that would potentially be subject to releases of hazardous materials and waste. The proposed training and exercises in this restricted area would use existing impact areas for the discharge of ordnance from aircraft and mobile artillery, while being controlled from the existing BAX.

MUNITIONS RELATED RESIDUE

USARAK currently conducts a number of training activities at the BAX that generate munitions-related residue or range residue. The expenditure of live ammunition or detonations has the potential to release hazardous chemicals or other elements, such as heavy metals, into the environment. However, because the proposed training and exercises in this restricted area would use existing impact areas, munitions related baseline information is not relevant to the NEPA analysis.

CONTAMINATED SITES

There are no Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Superfund sites listed on the National Priorities List in the BAX ROI (EPA 2011-1), nor are there any sites listed on the ADEC Contaminated Sites Database within the area proposed for the BAX (ADEC 2011). The Army Environmental Sites restoration database lists no contaminated sites in the BAX ROI (USAEC 2010).

3.3.7.2 Impact Assessment Methodology

The general methodology for evaluating hazardous materials and waste is described in Sections [3.1.7.2](#) and [3.2.7.2](#).

3.3.7.3 Environmental Consequences

3.3.7.3.1 Alternative A

Alternative A adds additional restricted area airspace designations to accommodate different types of ordnance use and provide for safety of civilian air traffic. This alternative also adds an additional restricted area for firing from ground-based artillery, located in the northwestern portion of the restricted area. The ground-disturbing impacts of munitions usage at the existing target arrays and areas of vehicle ground maneuvering were permitted and subject to NEPA analysis in 2006, in the *Final Environmental Impact Statement for the Construction and Operation of a Battle Area Complex and a Combined Arms Collective Training Facility within U.S. Army Training Lands in Alaska* (USARAK 2006-1). Therefore, no beneficial or adverse impacts would occur related to hazardous materials and waste. Mitigations would continue current monitoring and management (see Section [3.3.7.4](#)) to identify actions, as needed, to mitigate any future environmental threats from munitions contamination.

3.3.7.3.2 Alternative B (Preferred Alternative)

Impacts would be the same as those described for Alternative A.

3.3.7.3 No Action Alternative

Under the No Action Alternative, there would be no expansion of the restricted area over the BAX in DTA-East. Therefore, no additional hazardous material-related impacts would occur.

3.3.7.4 Mitigations

The preceding analysis of effects has identified potential pathways for adverse impacts from munitions usage. The following mitigation is proposed to avoid future impacts.

- The Army may augment the effort for their existing program to identify possible munitions contamination at training areas on DTA-East. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams.

3.3.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.3.8.1 Affected Environment

The proposed project area for BAX occurs in DTA-East within the Tanana-Kuskokwim Lowlands ecoregion (please see Figure B-11 in Appendix B, Section B.8). This ecoregion is characterized by gentle topography, patches of impermeable permafrost, and poor soil drainage. Bogs and fens and boreal, broadleaf, and coniferous forests dominate the landscape. Patterns of vegetation are determined by a variety of natural influences, including climate, topography (slope, aspect, and elevation), glaciation, flooding, depth to water table, and most important, permafrost and fire (USARAK 2006-2).

VEGETATION

An ecological survey of DTA reported vegetation cover as forest (29.0 percent), scrub lands (58.1 percent), tundra (4.4 percent), barren/partially vegetated lands (3.6 percent), human-disturbed lands (0.6 percent), and water (4.3 percent) (USARAK 2006-2). Forest cover in DTA is diverse and includes pure stands of spruce, hardwoods, and spruce/hardwood mixtures. The dominant types include white spruce, paper birch, quaking aspen, balsam poplar, black spruce, and spruce/hardwood. Scrub communities (typically composed of alder, willow, and dwarf birch) occur at high mountain elevations, in small stream-valley bottoms, and as pioneer vegetation on disturbed sites. Dense thickets of scrub communities exist along floodplains or disturbed sites such as gravel pits, road shoulders, rights-of-way, and military trails (USARAK 2006-2). The project area for the BAX Restricted Area Alternative includes the following vegetation communities: spruce woodlands/shrub, open spruce forest/shrub/bog mosaic, spruce and broadleaf forest, open and closed spruce forest, open spruce and closed mixed forest mosaic, and areas mapped as gravel bars that had burned in 1990.

Approximate acreages of these vegetation types that occur within the BAX project APE are presented in [Table 3-41](#).

Table 3-41. Land Types Associated with the Battle Area Complex Project

Spruce and Broadleaf Forest	Open and Closed Spruce Forest	Spruce Woodland/Shrub	Open Spruce and Closed Mixed Forest Mosaic	Open Spruce Forest/ Shrub/Bog Mosaic	Gravel Bars
Acres (hectares)					
3,662 (1,482)	2,801 (1,133)	624 (252)	4,267 (1,727)	15,338 (6,207)	2,155 (872)

Source: USGS 1991

Details on forest and wetland land types that occur in DTA are presented below.

Forest

The open and closed forests of DTA range from pure stands of spruce or hardwoods to spruce/hardwood (or broadleaf) mixtures. Predominate hardwoods are birch, quaking aspen, and balsam poplar. Bottomland forest of white spruce/balsam poplar occurs on level floodplains, low river terraces, and south-facing slopes. Stands of black spruce occur where drainage is poor, such as flat valley bottoms, lakesides, and muskegs. Lowland forest of black spruce/hardwood is the most common type in interior Alaska (USARAK 2006-2).

Wetland

Wetlands occur in a variety of forms, but in DTA most are shrub-dominated wetlands. Shrub wetlands, also known as bogs or low brush, are associated with slightly higher relief of marsh edges and poorly drained basins and depressions with cold, waterlogged soils. The surface primarily consists of a thick layer of peat over a mottled gray silt or silt loam. If not exposed, the water table is found only a few inches beneath the surface and during periods of heavy precipitation may form temporary lakes. Depth to ice-rich permafrost is often less than 30 inches. Ground cover is characterized by a dense accumulation of mosses, lichens, sedges, rushes, liverworts, mushrooms, and other fungi. Stunted black spruce occasionally occurs. Along the margins of bogs and in drier areas, grasses, small shrubs, and smaller trees, such as willow and dwarf arctic birch, proliferate (USARAK 2006-2).

WILDLIFE

The ADFG is responsible for managing game populations on Alaska’s military lands and establishing population and habitat management goals (USARAK 2006-2). The ADFG subdivides the state into GMUs; the BAX ROI occurs within GMU 20D. More information on GMUs and hunting activities is included under the Sections [3.3.10.1](#) of Land Use ([Recreation](#) subsection), and [3.3.13](#), Subsistence. The USFWS is primarily responsible for managing nongame fish and wildlife, including special status and migratory bird species. DoD environmental services work with both agencies to promote habitat management (including habitat improvement) on Army lands under various agreements, including INRMPs, the most recent being from 2006 (USARAK 2006-2).

Typical wildlife that use the BAX project area vicinity include moose, black bear, wolves, lynx, beavers, small mammals, and numerous waterfowl. Grizzly bear occur along the Delta River, with densities averaging about 10 to 12 bears per 1,000 square miles (USARAK 2006-2). Major migration routes for waterfowl have been mapped to the west and north of the project area associated with the Tanana and Delta River corridors (see Figure B-15 in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8).

An estimated 2 million waterfowl migrate through and near DTA each spring, and 9 million return during fall, the path roughly paralleling the Alaska Highway (USARAK 2006-2). A variety of waterfowl (ducks, geese, swans) uses the wetlands and floodplains of Jarvis Creek and the Delta River as stopover/resting habitat. One third of the world’s sandhill crane population passes through DTA on an annual basis and as many as 40,000 cranes per day pass through DTA during fall migration. Sandhill crane stopover habitat occurs primarily to the west of the BAX project area, cranes roost on the Delta River at night south and east of the BAX project area, and cranes feed on private agricultural fields north and west of the BAX project area. In addition, the International Union for Conservation of Nature has designated the upper Tanana River (including DTA-East and portions of DTA-West) as an area of global importance because of the high trumpeter swan and sandhill crane use. Raptors and passerines also migrate through the area along the Tanana River; estimates in the 1990s included 25,000 raptors passing through DTA during spring and 48,000 during fall (USARAK 2006-2). Migratory birds and their active nests are protected under the MBTA.

The Delta Caribou Herd, with some mixing from the Macomb Herd, uses approximately the southern quarter of the BAX project area as fall/winter habitat (see Figure B-13 in Appendix B, Section B.8). The more-limited caribou winter concentration areas occur in the foothills north of the Alaska Range on the other (western) side of the Delta River, and this herd calves primarily south and west of DTA. Moose are known to use the entire BAX project area at some time during the year and concentrate in the lower third of the BAX in winter (see Figure B-16 in Appendix B, Section B.8). Winter habitat can be critical to survival, as the animals are recovering from the hunting/breeding seasons, females are likely gestating, and all are enduring stresses from the harsh Alaskan weather and increased difficulties of traveling through snow. Therefore, areas identified as winter habitat are crucial to provide food sources that may be scarce or absent in other portions of wildlife species’ range in winter.

The project area occurs in the vicinity of a herd of introduced plains bison (*Bison bison*) that was established in the late 1920s. This herd, known as the Delta Bison Herd, is one of the few remaining free-ranging bison herds in the United States. This herd primarily calves along the Delta River east of the BAX project area and then migrates in late April through July to higher ground across the BAX project area to the Delta Junction Bison Range (Figure B-13). A 1980 cooperative agreement designated areas in DTA-East used as important bison late-summer and early-winter range as Special Interest Management Areas (USARAK 2006-2). Existing restrictions under the USAG-FWA Special Interest Management Area category include limits on disturbance to bison habitat areas from mid-February to early September when bison are present (USARAK 2007-2). Responsibility for Special Interest Management Areas falls under USAG-FWA Environmental Division, with access provided by Range Control.

Approximate acreages of known wildlife habitat of importance within the BAX project area are presented in [Table 3-42](#).

3.3.8.2 Impact Assessment Methodology

The general methodology for evaluating biological resources is described in Section [3.1.8.2](#).

Table 3-42. Wildlife Habitats Associated with the Battle Area Complex Project

Moose Winter Habitat	Waterfowl General Habitat
Acres (hectares)	
8,149 (3,298)	13,264 (5,368)

Source: RDI 2005-3, 2005-4, 2005-6

3.3.8.3 Environmental Consequences

3.3.8.3.1 Alternative A

The BAX and CACTF currently provides a tactical collective live-fire training facility that can be used mounted (by vehicle) or dismounted (on foot) with stationary and moving targets in both open and “urban” terrains. Munitions currently in use in the BAX project area primarily include small arms and air-to-ground munitions. Establishment of the BAX and the CACTF, and use for live firing and maneuvering, are addressed in the final EIS for the establishment and operation of the BAX and CACTF (USARAK 2006-1).

Establishment of the proposed restricted area would accommodate use of air-to-ground ordnance, including Hellfire missile carry trainers, practice rockets, aircraft-mounted cannon and machine guns, as well as laser designators, pointers, and rangefinders. These would be used by Army helicopters stationed at Fort Wainwright, Alaska, UAVs, and other aircraft in combination with existing ground-based training and ordnance use. Ground-based ordnance use would include artillery, mortars, machine guns, 105-mm howitzers from Stryker vehicles, and illumination rounds from 155-mm howitzers. All weapons used within the BAX and CACTF, including air-to-ground weapons, would be non-dud-producing types that do not contain explosive substances, unless used in an existing live ordnance impact area (i.e., Oklahoma Impact Area). The ground-based training and ordnance component is already permitted for use. It is assumed that the addition of the 105-mm firing capability in the BAX will not result in an increase in the maximum off-road travel by military vehicles that occurs in the BAX.

As described in Section [3.3.7.3.2](#), Affected Environment, a variety of vegetation types occur within the BAX project area. Under the proposed project, no new ground-disturbing activities that differ substantially from activities already occurring within the BAX are expected to occur. It is expected that evolving training needs will require identification of additional firing points and target areas for the inert ordnance, which would be located according to established siting and environmental protection measures and subsequent review under NEPA, discussed further in Chapter [2.0](#). Effects to vegetation communities would continue to be localized. The vegetation classes present in DTA-East project area are widespread across the project region and are not unique or considered sensitive communities, and are not associated with endangered or threatened species. Therefore, no significant adverse effects to vegetation communities are expected.

No new live-fire impact areas would be established, and no substantially different impact types would be introduced into the BAX area as a result of this project. It was assumed that the proposed activities, e.g., the addition of air-to-ground ordnance use, would not cause training to occur at different seasons or locations than current training activities. Impacts on wildlife would be greater if a change in season of human activity would occur that may adversely affect sensitive activities such as calving, nesting, breeding, migration, or critical winter range use. Because a variety of training already occurs within the BAX project area and a variety of wildlife species occur there, the resident and migratory species are exposed to, and likely habituated to, the types of disturbances that result from these types of activities. Wildlife habitats present within the project area are not associated with sensitive, endangered, or threatened species and are generally widely available within the project region.

Because the Army in Alaska has worked to foster healthy, stable, ecosystems while completing its military mission, localized effects to biological resources are not expected to cause harm to populations or biodiversity.

Overall impacts to biological resources from the expansion of restricted airspace over the BAX in DTA-East and from changes in the ordnance and aircraft use in the BAX project area under Alternative A are expected to be adverse but not significant. Impacts would be further reduced given implementation of

proposed and ongoing mitigation, such as Special Interest Management Areas, maintaining dialogue with BLM and ADNR to adjust restrictions, and impact avoidance measures (see Section [3.3.8.4](#)).

3.3.8.3.2 Alternative B (Preferred Alternative)

This alternative includes a substantially larger proposed restricted airspace than under Alternative A, plus an enlarged SDZ to more fully encompass ongoing activities in the BAX. As described for Alternative A, these activities will continue to include the use of only inert (nonexplosive), nondudded munitions. Alternative B also includes establishment of temporary impact areas for inert mortar rounds that are proposed for in and near the current BAX live-fire range (refer to [Figure 2-7](#)). Sizes and exact locations of these areas are unknown at this time, but target establishment may result in adverse biological impacts. Biological surveys have been conducted for wetlands and raptor nests, and no raptor nests were recorded in areas where targets may be situated. If adjustments for final siting of targets are made, they would be according to established procedures used by USARAK and the USAG-FWA Environmental Division, to select suitable locations while also considering a range of environmental, operational, and land use constraints that would minimize impacts on wildlife and vegetation. Overall impacts to biological resources from the expansion of restricted airspace over the BAX in DTA-East under Alternative B are expected to be adverse but not significant and would be further reduced given implementation of proposed and ongoing mitigation and impact avoidance measures summarized below (Section [3.3.8.4](#)).

3.3.8.3.3 No Action Alternative

The current amount of ground disturbance (from training, vehicles and live fire) would be expected to continue, and wildlife using the area would be expected to remain active in occupied habitats. Localized vegetation impacts from training would continue as under current existing conditions.

3.3.8.4 Mitigations

The preceding analysis has identified adverse impacts to biological resources. The following mitigations are proposed to reduce these impacts.

- Maintain consultation with USFWS with regard to compliance with Bald and Golden Eagle Protection Act and MBTA. As required, conduct bald and golden eagle nest surveys in other areas where airspace modification would occur over previously unsurveyed areas. Coordinate the results with USFWS.
- Continue to monitor effects of military training including overflights on select wildlife species (especially herd animals, waterfowl, and raptors) and fisheries during critical seasons such as breeding, young-rearing, and migration. Use knowledge to develop and implement strategies to minimize disturbance to priority wildlife in existing and new SUAs and restricted airspace. This would help natural resources and range managers to coordinate training schedules that minimize impacts on wildlife populations.
- Continue pilot and soldier education awareness of sensitive wildlife species habitats and seasonal behaviors utilizing GIS mapping and discuss procedures to reduce disturbances and to increase safety by reducing potential for aircraft strikes.
- Continue effort to conduct a detailed study to assess the impacts and effects of noise on wildlife, particularly key species such as caribou and bison, during critical life cycle seasons. Use information to include protection requirements within a noise management plan.
- The Army may augment the effort for their existing program to identify possible munitions contamination at training areas on DTA-East. This program initiates the collection of baseline

data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams.

- The military will maintain an open dialogue with ADNR, BLM, ADFG and USFWS to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the ROD for this EIS.

3.3.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.3.9.1 Affected Environment

The ROI for the BAX Restricted Area action consists of that portion of DTA and the land beneath the existing Buffalo, Delta 3, and Delta 4 MOAs where the new restricted area would be located ([Figure 2-6](#) and [Figure 2-7](#)).

There are 153 known archaeological sites located under the entire restricted airspace (USAG-FWA 2012). One hundred twenty-four sites that are eligible or may be eligible for listing in the National Register are located within the original boundaries of the BAX SDZ. An additional 14 sites are known from the expanded portions of the BAX footprint (see Table H-2 in Appendix H, *Cultural Resources*) in the northwest corner and southern end ([Figure 2-6](#) and [Figure 2-7](#)). To comprehensively identify all archaeological sites in the expanded footprint of the BAX SDZ, an additional 1,182 acres need to be surveyed. Archaeological sites under training airspace include native burial grounds, village and settlement sites, and historic mining sites (Air Force 2006-1). Architectural resources under the proposed BAX Restricted Area within the existing MOAs include structures relating to gold mining, trapping, or the railroad (Air Force 2006-1). Locations of Federally recognized Alaska Native tribes under or near the airspace discussed below are illustrated in [Figure 3-10](#).

NATIONAL REGISTER–LISTED PROPERTIES

Rapids Roadhouse, also known as Black Rapids Roadhouse, in the Delta vicinity, underlies Buffalo MOA and is the only National Register–listed cultural resource under the existing Buffalo and Delta 4 MOAs (NRIS 2011). Rapids Roadhouse is south of the proposed restricted area. The Sullivan Roadhouse, Big Delta Historic District, and the Rika’s Landing Roadhouse National Register–listed properties are all under the Delta 3 MOA, outside the ROI for both alternatives of the BAX Restricted Area proposal.

TRADITIONAL CULTURAL PROPERTIES AND ALASKA NATIVE CONCERNS

No Federally recognized Alaska Native tribes are under the Buffalo and Delta 4 MOAs ([Figure 3-10](#)). Although no traditional cultural properties have been specifically identified underneath the airspace, this does not mean that none are present. In compliance with the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed new restricted area.

3.3.9.2 Impact Assessment Methodology

The methodology used for the analysis of potential impacts on cultural resources for the proposed BAX action is the same as the methodology used for the analysis for the RLOD action (Section [3.2.9.2](#)).

3.3.9.3 Environmental Consequences

3.3.9.3.1 Alternative A

Alternative A proposes to convert and modify the airspace structure currently established as the BAX CFA to a restricted area ([Figure 2-6](#)) and use it for training as described in [Table 2-10](#) and [Table 2-11](#). Alternative A includes the expansion of the BAX SDZ, which is the downrange safety buffer zone that covers the maximum distance stray rounds may travel.

Although 153 archaeological sites are located under the training airspace, no significant impacts are anticipated to cultural resources from the airspace reclassification and its training use. Flying operations are not conducted at a frequency sufficient to result in time-averaged noise levels exceeding 65 dB DNL. As described in Section [3.3.2](#), noise levels generated by munitions firing exceeding 62 dB CDNL would not extend beyond range boundaries (see Appendix E, *Noise*).

However, adverse effects are likely for the 14 known archaeological sites within the expanded footprint of the BAX, as well as any sites found during surveys of the previously unsurveyed areas bounded by the expanded BAX SDZ footprint. In compliance with Section 106 of the NHPA, the Army has completed consultation with the Alaska SHPO and executed an *Amended Programmatic Agreement [PA] between the United States Department of the Army and the Alaska State Historic Preservation Officer regarding Monitoring and Treatment Plan of Archaeological Sites located within the Surface Danger Zone of the Battle Area Complex Training Facility at Fort Wainwright, Donnelly Training Area* (see Appendix L). The SHPO has concurred with the finding of no adverse effect, provided that a monitoring and data recovery program is implemented. Under the terms of the PA, consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities will continue for the duration of the PA. Further mitigations for this action are described in Section [3.3.8.4](#), and include possible amending of the existing PA and the completion of all compliance requirements for consultation with Alaska SHPO with implementation of mitigations or management identified in this process to minimize impacts on cultural resources.

No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed new restricted area. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources, or Indian land under the proposed new restricted area and expanded BAX SDZ footprint (see Section [1.6.5](#)).

3.3.9.3.2 Alternative B (Preferred Alternative)

Under this alternative, the proposed restricted area over the BAX and CACTF in DTA-East would extend beyond the boundaries proposed for Alternative A to encompass the BAX and CACTF boundaries ([Figure 2-7](#)).

Under Alternative B, impacts would be similar to Alternative A, with no significant impacts anticipated to cultural resources from the airspace reclassification and expansion and its training use. Adverse effects to

cultural resources in the expanded BAX SDZ footprint have been resolved through the NHPA Section 106 consultation process as outlined in the discussion of Alternative A.

No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed new restricted area. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM, on behalf of the Army, has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian Land under the proposed new restricted area and expanded BAX SDZ footprint (see Section [1.6.5](#)).

3.3.9.3 No Action Alternative

Under the No Action Alternative there would be no expansion of the restricted area over the BAX in DTA-East and no expansion of the BAX SDZ footprint. Existing use of the restricted areas would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.

3.3.9.4 Mitigations

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. Potential adverse effects to archaeological sites in the expanded BAX SDZ footprint will be mitigated by adherence to the terms, conditions, and stipulations in the Amended PA executed through NHPA Section 106 consultation pursuant to 36 CFR 800 (see Appendix L, *Agency and Government Correspondence*). The following mitigation is proposed to protect cultural resources.

- Mitigations for impacts to cultural resources are established through NHPA Section 106 consultation pursuant to 36 CFR 800. In compliance with Section 106 of the NHPA the Army has completed consultation with the Alaska SHPO and complied with all requirements for consultation with potentially affected Alaska Native Tribes, ANCSA corporations, and Tribal government entities to identify historic properties that may be affected, including TCPs, and develop management actions and mitigation measures to resolve any adverse effects, if required. It has been determined that significant adverse impacts to cultural resources and Alaska Native Tribes, ANCSA corporations, and Tribal government entities would not occur by the implementation of the BAX Restricted Area proposal. Mitigation measures include the amendment of the existing BAX Surface Danger Zone Programmatic Agreement to include the known and as yet undiscovered archaeological sites in the expanded BAX SDZ footprint. Specific Programmatic Agreement requirements are to survey new areas of the amended BAX SDZ within a period of five years from the amended agreement (9/9/12); add any sites that are discovered to the BAX SDZ monitoring plan; produce an annual report to the Alaska SHPO; update the Archaeological Resource Protection Act tri-fold handout and develop a placard describing cultural resources on the BAX SDZ that will be presented in the form of, at a minimum, one poster displayed at Range Control, and one interpretive panel placard to be displayed at an information kiosk located at the BAX range; and develop a cultural resource awareness PowerPoint presentation to be given to Soldiers and contractors to increase knowledge of cultural resource concerns and responsible actions, and knowledge of Alaska Native communities. All of the above mentioned requirements are either completed or in progress. Annual monitoring of archaeological sites within the BAX SDZ began in August of 2009 and will continue for 10 years from this date. In accordance with AR 200-1, all NHPA Section 106 consultation has been completed. In the event that previously unrecorded or unevaluated cultural resources are encountered, the Army would manage these resources in accordance with the NHPA and other

Federal and State laws, Air Force, and DoD regulations and instructions, and DoD American Indian and Alaska Native Policy.

3.3.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.3.10.1 Affected Environment

LAND STATUS, MANAGEMENT AND USE

Land Status

All land within the proposed BAX Restricted Area proposal is under military management within DTA-East. Land ownership in and around the BAX proposal area is shown in [Figure 3-28](#). Adjacent land includes Fort Greely and Delta Junction to the north and private land along the Alaska Highway, DTA-West on the west side of the Delta River, and predominantly State land on the south and eastern border. Between DTA-West and DTA-East along the Richardson Highway is an area referred to as the “key hole” (about 7,290 acres), composed of BLM-managed land (1,895 acres), military-managed land (about 1,520), State-managed land (about about 180 acres) and private land (about 3,690 acres).

Land Management and Use

All the land directly underlying the proposed restricted airspace within DTA-East is under military management and is not used by the public for productive uses. The USARAK INRMP provides the management framework for the lands within DTA, with the goal of conserving its various natural values while maximizing military, and as possible, public access uses (USARAK 2006-2). To the west, R-2202 overlies DTA-West, the Oklahoma/Delta Creek Impact Area, the Mississippi Impact Area, and the Washington Impact Area. These military training lands are not within the proposal area but support the use and training activities on DTA-East. The Army also has a network of supporting infrastructure (such as roads, communications lines, utilities), some above and some below ground. Some of these restrict what activities can occur on the surface (that would not cause damage to the assets). Several existing rights-of way, leases, and permits are also in effect for regional and national infrastructures, such as communications lines and towers, transmission lines, and energy pipelines. A major consideration for surface activities is the Trans-Alaska Pipeline which traverses DTA-East. Off-road vehicle and other weight-bearing activities and ground disturbance are not allowed to interfere with the maintenance work pad that parallels the pipeline.

Public use of DTA-East is essentially limited to hunting, fishing, and trapping for recreational, personal, and subsistence purposes. There are no agricultural or commercial extractive activities, although limited timber harvesting is permitted. DTA-East is predominantly categorized as Open Use (available year-round for all forms of recreation), with the exception of some isolated wetland areas and the Jarvis Creek channel, which are considered Limited Use (accessible year-round only to nonmotorized forms of recreation) areas.

Fort Greely, immediately adjacent to the BAX/CACTF, has a full spectrum of cantonment uses, industrial and mission-focused, as well as community uses such as housing and a school.

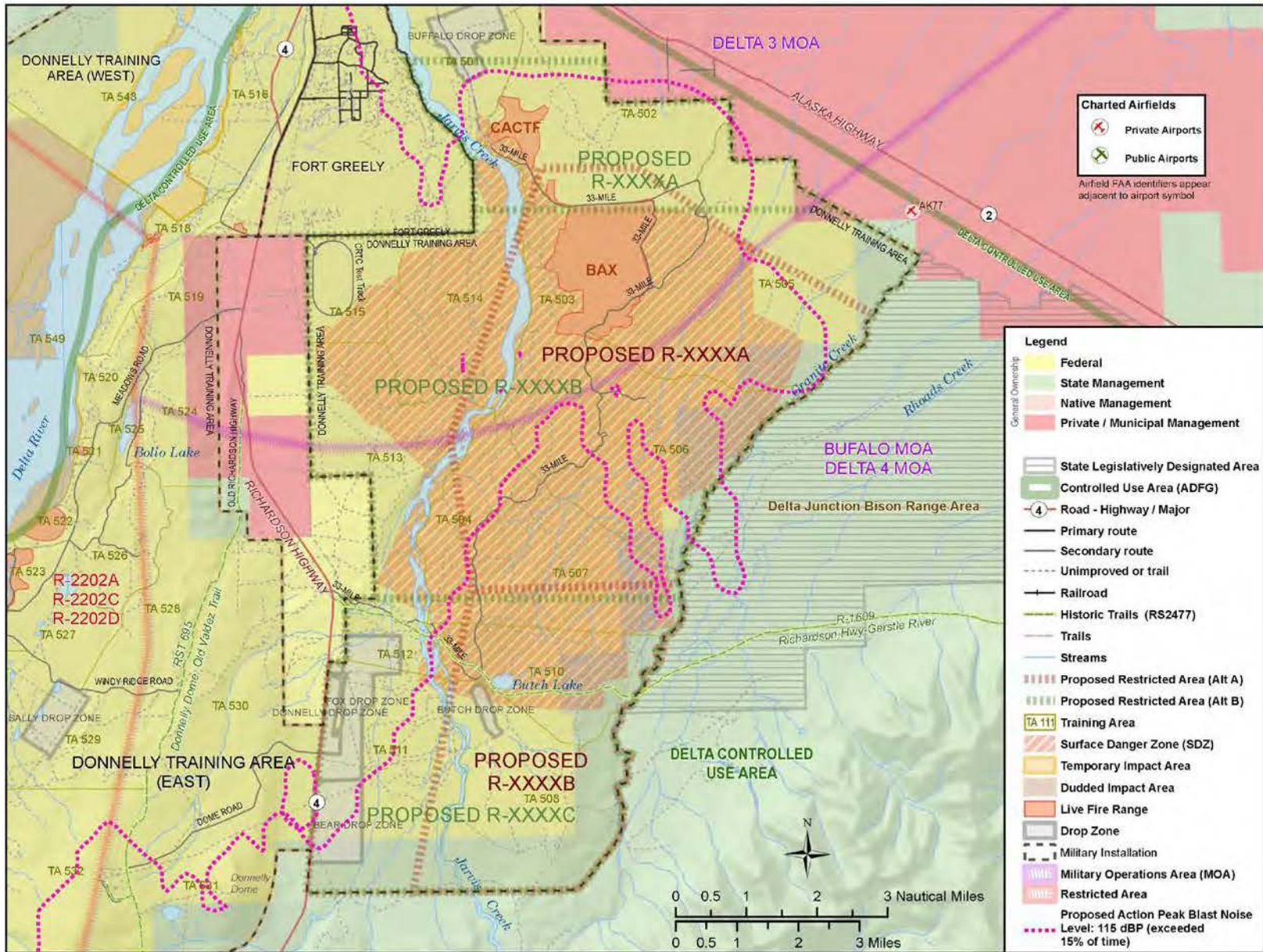


Figure 3-28. Land Status and Special Use Areas Around the Battle Area Complex Restricted Airspace Proposal Area

Delta Junction, directly north of Fort Greely at the junction of the Richardson and Alaska Highways, does not have a comprehensive plan for land use, but has established municipal ordinances governing land use and subdivision layout and approvals. The City Planning Commission serves as both an advisory body (prepares plans) and enforcing body of city ordinances. The Commission approves all plat plans, variances, and conditional use requests. The “key hole” area is essentially undeveloped and wooded, with one or two existing residences. There is an existing Memorandum of Agreement (USARAK-MOA-029), signed 16 May 2006, between USARAK and the City of Delta Junction. The agreement lays out specific operational actions and restrictions that apply to the use and management of the existing BAX and CACTF in DTA-East (USARAK 2006-3). Mitigations as outlined in the BAX and CACTF Final EIS (dated June 2006) and ROD (signed 19 July 2006) remain in effect and will not be superseded unless a better-practice, enhanced, stringent mitigation is implemented as part of this EIS.

The State land surrounding DTA-East is within the East Tanana planning area. This plan is currently under development. Most of the State land is managed for its habitat values. There is only one State legislatively designated area near the BAX proposal area: the Delta Junction Bison Range. [Figure 3-28](#) shows the location of this area (see Appendix I, *Land Use, Public Access, and Recreation*, for a description of this area). BLM land in the key hole area is managed by the Central Yukon Field Office. A portion of the Delta CUA (about 5 percent) overlaps with DTA-East. The CUA is managed by ADFG with seasonal limitations on the use of motorized vehicles for hunting.

Communities in the surrounding area that have residential use and subsistence ties to the proposal area include Delta Junction, Big Delta, Healy Lake Village, Village of Dot Lake, Native Village of Tanacross, Native Village of Tetlin, Northway Village, Deltana (a CDP), and Dry Creek (a nonnative community 45 miles south-southeast of Delta Junction). These towns are considered rural areas. Subsistence use is described in Section [3.3.12.3.1](#). The Trans-Alaska pipeline is within the Richardson Highway alignment in the vicinity of the proposal area.

[Figure 3-28](#) shows that areas currently exposed to peak noise levels of 115 dB PK 15(met) outside the installation boundary to the north of DTA-West is mostly forested with valuable moose habitat and good hunting opportunities. Within the existing 115 dB PK 15(met) noise exposure footprint is the “key hole” area between DTA-East and DTA-West. This area (7,290 acres) is composed primarily of private and BLM land. The area is also forested with one or two homes. A small area of private land immediately north of DTA-East (south of the Alaska Highway along Tumey Road) has residences that are also currently exposed to noise levels of 115 dB PK 15(met). Some persons using this area may be annoyed by peak levels above 115 dB PK 15(met).

PUBLIC ACCESS

Ground Access

One RS-2477–designated route, the Richardson Highway-Gerstle River trail (RST 1609), traverses the BAX Restricted Area proposal area. DTA-East is readily accessible to the public, containing over 150 miles of existing trails, some of which are overgrown and not drivable. Access roads, including 33-Mile Loop Road, Meadows Road, Dome Road, Old Richardson Highway, and Fleet Street, connect directly to either the Richardson or Alaska Highway. Additional access was historically available through the Fort Greely cantonment area, but is no longer available for recreation or general access. In addition to vehicle access via roads, much of DTA-East is available for ORRV and aerial access. ORRV and winter trails exist across DTA-East.

The 33-Mile Loop is one of the more-popular trail systems in DTA-East and is the primary access artery to training areas within DTA-East, but it is severely degraded in certain locations and may be impassable in some areas when wet (except in winter). A series of other trails run north–south and east–west and connect into 33-Mile Loop Road. Other access west of Richardson Highway includes Windy Ridge Road and Meadows Loop, which are popular recreation trails. Meadows Road intersects the Richardson

Highway and heads west and south to intersect with Windy Ridge Road, which heads east to intersect with the Old Richardson Highway.

Aerial Access

A list of the charted public and private airports and airstrips in the ROI of this proposed action is provided in [Table 3-43](#) and shown on [Figure 3-28](#). This table indicates communities and special areas served by charted airports and airfields in the BAX proposal area. No private or public airports are directly within the proposal airspace.

Navigable and Public Waters

Jarvis Creek and a number of small lakes are within the proposal area. These water bodies are not identified by ADNR as navigable or public waters (ADNR 2011).

Table 3-43. Charted Airports Serving the Battle Area Complex Proposal Area

Charted Airport	Areas Underlying or Within 20-mile Service Radius	
	Community	Special Use Area
Rocking T Ranch Airport	Delta Junction, Big Delta Junction, Deltana CDP, Big Delta CDP, Fort Greely CDP, Delta Junction City, Whitestone CDP, Healy Lake CDP	Delta Junction Bison Range Area, Tanana Valley SFR, Clearwater SRS, Big Delta SHP, Quartz Lake SRA, Delta SRS
All West Airport	Delta Junction, Big Delta, Fort Greely CDP, Whitestone CDP, Healy Lake CDP, Delta Junction City, Deltana CDP, Big Delta CDP	Delta Junction Bison Range Area, Tanana Valley SFR, Delta SRS, Clearwater SRS, Big Delta SHP.
Delta Junction Airport	Big Delta, Delta Junction, Big Delta CDP, Fort Greely CDP, Whitestone CDP, Deltana CDP, Delta Junction City	Delta Junction Bison Range Area, Tanana Valley SFR, Clearwater SRS, Delta SRS, Quartz Lake SRA, Big Delta SHP.
Windsong Estates Airport	Big Delta, Delta Junction, Deltana CDP, Fort Greely CDP, Healy Lake CDP, Whitestone CDP, Big Delta CDP, Delta Junction City,	Delta Junction Bison Range Area, Tanana Valley SFR, Clearwater SRS, Big Delta SHP, Quartz Lake SRA, Delta SRS
Remington Field Airport	Big Delta, Delta Junction, Delta Junction City, Fort Greely CDP, Deltana CDP, Whitestone CDP, Healy Lake CDP, Big Delta CDP	Tanana Valley SFR, Delta Junction Bison Range Area, Big Delta SHP, Quartz Lake SRA, Delta SRS, Clearwater SRS
Arctic Angel Airport	Delta Junction, Big Delta, Harding-Birch Lakes CDP, Deltana CDP, Whitestone CDP, Fort Greely CDP, Big Delta CDP, Delta Junction City	Delta Junction Bison Range Area, Tanana Valley SFR, Clearwater SRS, Big Delta SHP, Delta SRS, Quartz Lake SRA
Delta Daves Airport	Delta Junction, Big Delta, Big Delta CDP, Delta Junction City, Deltana CDP, Fort Greely CDP, Harding-Birch Lakes CDP, Whitestone CDP	Delta Junction Bison Range Area, Tanana Valley SFR, Quartz Lake SRA, Delta SRS, Big Delta SHP, Clearwater SRS.
Black Rapids Airport	Fort Greely CDP, Deltana CDP	Delta National Wild Scenic and Recreational River, Donnelly Creek SRS

Note: Bold text indicates that the airport is under the proposed airspace for this proposal.

Key: CDP=Census Designated Place; CHA=Critical Habitat Area; PUA=Public Use Area; RMA=Resource Management Area; SFR=State Forest; SGR=State Game Refuge; SHP=State Historic Park; SRA=State Recreation Area; SRS=State Recreation Site.

Source: FAA 2011-6; AirNav 2011.

RECREATION

The proposal area only includes military lands in DTA-East/Fort Greely East. DTA-East is a popular recreational destination for Alaska residents, particularly for those in the Fairbanks-Delta Junction area. The *Final Environmental Impact Statement for Transformation of U.S. Army Alaska, Vol. 2, Appendix E* (USARAK 2004-1) provides historic recreational use numbers for DTA and these are summarized in [Table 3-44](#).

Hunting

Moose hunting is popular in DTA-East, occurring mainly along the east side of the 33-Mile Loop Road. This area is a nonpermit area, but it does have antler restrictions for moose. The open views from ridgelines provide excellent vantage points for hunters. Training Areas 8, 9, 10, 11, 16, 17, 19, and the Gerstle River are the only areas in DTA-East within GMU 20D that are open for nonpermit moose hunts in September.

Table 3-44. Recreational Use in the Donnelly Training Area East

Recreational Category	Approximate Average Annual Number Users
Donnelly Training Area	
Hunting	1,150
Trapping	50
Fishing	1,500
Off-Road Recreational Vehicle Use	400
Hiking	200
Other	1,700

Source: USARAK 2004-1.

The ADFG's Delta Junction Management Area (DJMA) encompasses most of DTA-East. ADFG hunting restrictions within DJMA apply only to moose. To hunt moose in this area, one must apply for a permit through the ADFG drawing process. Only 20 permits have been issued through this lottery per year. Texas Range, Washington Range, and the Washington Impact Area lie within DJMA. USAG-FWA restricts recreational access to these areas. State of Alaska regulations allow black bear hunting year-round in GMU 20D, with a harvest limit of three per regulatory year. Black bears may also be taken over a State-registered bait stand from approximately April 15 to June 30. Black bear baiting is allowed in DTA after registration of the stand with the State of Alaska and USAG-FWA. As with all recreational activities, some areas may be temporarily closed to bear baiting due to training.

Grizzly (brown) bear hunting is open from approximately August 10 to June 30, with a harvest limit of one per regulatory year. The caribou hunt (bulls) in DTA-East is open to residents only through a registration hunt. This season occurs approximately August 15 to August 25. Bison hunts are allowed through the ADFG drawing process. The number of permits issued is based on that year's population estimates and composition. There is insufficient habitat for Dall sheep in DTA-East; thus, no sheep hunting occurs. Access through DTA-East for Dall sheep hunting in other areas off-post does occur, as the Granite Mountains (to the east of DTA-East) are part of an ADFG drawing permit sheep hunting area.

The 90,000-acre Delta Junction Bison Range surrounds DTA-East and is popular. This special use area is popular for hunting, cross-country skiing, agricultural research, dog sledding, trapping, wildlife viewing, fishing, and other activities. There are also timber sales on the range. About 40 hunting parties travel to the range to hunt bison each year. Bison can be viewed from the Richardson Highway during the spring and summer months, and throughout the range during the summer (ADFG 2012).

Trapping

Popular furbearer species for trapping include lynx, beaver, pine marten, fox, and wolves. Trapping on DTA-East requires registration of traplines with the USAG-FWA Environmental Division, a Recreational Access Permit, and a daily phone call to the USARTRAK system.

Fishing

Fishing is a popular recreational activity in DTA-East. However, there are no lakes located in DTA-East within the BAX project area. Jarvis Creek is located within the project area and contains grayling. On the west side of Richardson Highway, several lakes are stocked by ADFG on DTA-West, training areas 524, 526, 528, 529, and 531.

Trail Use

Hiking opportunities exist within DTA-East. The most popular hiking area is the Donnelly Dome Hike. Other popular hiking routes include 33-Mile Loop, Windy Ridge Road, and Meadows Road. Public access for trail use is allowed with a valid Recreational Access Permit, but is subject to closures and to safety military security restrictions. A call to the USARTRAK system is also required before entering the area. Many recreational activities are seasonal and occur in brief bursts each year.

ORRV

ORRVs are primarily used to access hunting, fishing, and trapping areas, and for recreational riding in DTA-East.

3.3.10.2 Impact Assessment Methodology

The general methodology for evaluating land use, public access, and recreation is described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The following are the primary impacts of this proposal on land use, including public access and recreation:

- Effects of military overflights on underlying uses and activities (primarily from aircraft noise), as described in Section [3.1.10.2](#)
- Effects of countermeasures deployment on land uses and recreation, as described in Section [3.1.10.2](#)
- Effects of weapons and munitions use on land uses and recreation areas, as described in Sections [3.2.2.2](#) and [3.1.10.2](#)
- Effects of ground-based military operations (such as vehicle and convoy operations on range roads, ground maneuver training both on range and cross-country roads, pedestrian activities, and bivouacking) described below

Ground-based military activities generally require exclusive use of training areas and ranges when in use. This makes them unavailable for other uses (either public use or range management). The assessment considers the reduction in time available for approved and permitted non-military uses based on average current availability for these activities. The relative importance of reduced access considers which specific locations and non-military uses are affected, the relative size of affected areas, and whether other locations in the local area can provide for similar uses and activities, and are substitutable.

In some cases, if the proposed military operations are in proximity to ongoing occupied facilities and uses on adjacent non-military land, the analysis reviews effects of noise, dust, traffic, or potential safety hazards on these uses. Impact is measured by degree of displacement or reduced suitability of affected areas for existing or planned use. The evaluation considers the importance of affected roads and trails and

whether these provide through-access to areas that remain open (outside of the hazardous zone) and therefore available for use.

For recreation, the assessment evaluates the impact of reduced time available for permitted recreational activities on military land. It considers the types of recreation affected, potential for military operations to change the habitats and features that are intrinsic to affected recreational opportunities, and the scarcity or prevalence of alternative similar recreational opportunities in the area.

3.3.10.3 Environmental Consequences

The analysis of the BAX restricted airspace proposal assumes that military training and test missions at the BAX with new restricted airspace would preempt non-military use and range management functions. Proposed operations at the BAX with new restricted airspace would result in restrictions on public use and in closure of roads and trails on military land underneath the proposed restricted airspace between 50 and 98 percent of the time. With the exception of the existing CACTF, these areas are mostly available for public access currently.

3.3.10.3.1 Alternative A

Land Status, Management, and Use. The primary land use on DTA-East is military training, and this would not change under the BAX proposal. Public uses taking place on DTA-East including: recreation, personal use and subsistence, hunting, gathering, and trapping would continue, but available time for access would become very limited. With the exception of access for personal-use timber harvesting, there are no other public uses (for example, agriculture or mining), occurring in the BAX proposal area, therefore no impact would result. Hazardous activities would take place on about 3 to 5 days each week and would reduce time available for range management tasks, including restorative projects, research, monitoring and surveys. Coordinated scheduling could minimize conflicts in arranging adequate time on range for management functions.

The USARAK IRO and USAG-FWA would review final selected sites for new firing points and targets to ensure the location does not conflict with key infrastructure (both surface and underground). This would include checking that new sites do not coincide with land restrictions in effect for existing leases, permits, and rights-of-way, including the Trans-Alaska Pipeline. This review would stipulate commitments to maintaining access for maintenance and operations associated with these real property interests. The primary source of noise for the proposed BAX operations is from firing of larger caliber weapons. Noise levels associated with the proposed restricted airspace and operations on DTA-East are presented in Section [3.3.2.3](#). Noise contours (exhibited in [Figure 3-26](#)) show a slight increase in sound exposure and slight expansion of the area exposed to 62 dB CDNL and above. Noise exposure on areas outside the installation would remain well below 62 dB L_{dnmr} . No areas would experience incompatible averaged impulsive noise levels.

[Table 3-45](#) shows the ownership status of land affected by peak noise levels under the BAX proposal. The table reveals that current firing on both DTA-West and -East already affects about 21,850 acres outside the installation boundaries. With the proposed BAX operations for this alternative, peak levels above 115 dB PK 15(met) would expand and affect about 550 acres of State land to the east of DTA-East. This land is within the Delta Junction Bison Range Area, which is specially managed as a habitat, hunting, and recreational resource (shown in [Figure 3-28](#)). These elevated noise levels could annoy some persons, particularly because they would occur regularly, and enjoyment of this area includes its qualities of naturalness. A minor adverse impact on outdoor users and management priorities would result. Other locations around DTA-East and West (predominantly State land) would not experience any appreciable change in peak noise levels, but they would occur more frequently. Affected areas have very few permanent residents, although they may support camping in summer months. No appreciable change

to peak noise levels would occur in other locations outside the military land. An additional 7,480 acres of military land would experience peak noise levels of 115 dB PK 15(met). Most of this occurs in the south part of DTA-East, but these levels would expand slightly to the north of the CACTF area in TAs 501 and 502, and the eastern part of Fort Greely. They would not extend outside the military boundary into Delta Junction. Residents in Delta Junction may be aware of more frequent firing, but the levels would be less than 115 dB PK 15(met). The sound of these noise levels have been described as similar to the clap of distant thunder.

Public Access. Civilian ground and air access is currently permitted within the proposal area with the exception of the BAX/CACTF, an off-limits area, and Jarvis Creek channel, which is considered Limited Use (all non-motorized forms of recreation year-round) subject to closures due primarily to military training exercise and during freeze-up or break-up. Under this proposal, civilian ground and air access would not be permitted within the project area when the BAX and restricted area are active.

**Table 3-45. Peak Noise Exposure Associated with
the Proposed Battle Area Complex Restricted Airspace Proposal**

Location	Current 115 dB PK 15(met) Exposure (acres)	Proposed 115 dB PK 15(met) Exposure (acres)	Change (acres)
Military Land	328,130	335,600	7,480
Non-military Land			
State	14,350	14,900	550
Private/Municipal	4,070	4,070	0
Bureau of Land Management	1,900	1,900	0
Military-managed	1,530	1,530	0
Total Non-military	21,850	22,400	550
Total (all lands)	349,970	358,000	8,030

Key: dB=decibels.
Source: ADNR 2011-2.

Ground Access. RS-2477 trails, including Richardson Highway-Gerstle River trail and 33-Mile Loop Road, and the 12-Mile Crossing, would no longer be accessible on 3 to 5 days each week when the BAX and restricted airspace are active. This would result in an adverse impact on the accessibility of trails and roads mentioned above and to the use of areas served by those routes.

The current automated access system allows users to manage the access process themselves. Managing and enforcing public access restrictions is a safety concern, not only because of intentional trespass, but also inadvertent access. Restricting public access to areas that have historically allowed public access would require additional monitoring and enforcement; this would require additional labor, and could exceed current staffing capacity. USAG-FWA proposes mitigations to expand enforcement to control access to unsafe areas. Working with ADNR and BLM, USAG-FWA will adjust restrictions as needed and disseminate information and maps to the public in order to reduce the risks of inadvertent incompatible public use.

Air Access. No chartered airports are located within the proposed restricted area; therefore, no direct impacts on air access would occur. As reported in Section [3.3.1.3](#), little impact is anticipated on local airports. The indirect impact of local communities and enterprise would therefore be minimal.

Navigable and Public Waters. No navigable and public waters are located within the project site or vicinity. Therefore, no direct or indirect impacts on navigable and public waters would occur.

Recreation

Recreational activities including hunting within the proposal area would be prohibited under this alternative when the BAX and restricted area are active with military training and exercises taking place. Several locations within the project area traditionally used by the public during moose hunting season would no longer be available under this alternative. Hunters typically set up a camp and remain in the field for a weekend (or more) at a time. New restrictions would adversely affect hunters who traditionally camp and hunt within the DTA-East project area. A moderate amount of nonhunting recreation occurs in the proposal area and would also be impacted by restricted access (see [Table 3-44](#)).

[Figure 3-28](#) shows that land surrounding the proposal area includes some superior opportunities for hunting and recreation including the Delta Junction Bison Range. Reduced availability of this area for public recreation would have a moderate impact on a small but locally active constituency of hunters.

This proposal would also prevent use of portions of the Richardson Highway-Gerstle River Trail, the 33-Mile Loop Road, and the 12-Mile Crossing. Elimination of these access points would reduce the amount of recreation area available to the public within DTA-East. Interrupted access from 33-Mile Loop Road could also limit access to Delta Junction Bison Range area and Granite Mountains, which are used by the public for sheep, caribou, and small game hunting, and other activities. The 12-Mile Crossing may be the easiest access into the Granite Mountains; however, alternative access trails to the Granite Mountains exist off military lands. Noise effects (exceeding 115 dB PK 15[met]) from new munitions usage would affect about 550 acres in the Delta Junction Bison Range with potential minor adverse effects on recreational use of this range.

Overall, both noise and access impacts of this proposal would have an adverse but less than significant impact on local recreation opportunities in the Delta Junction area. This impact is somewhat moderated considering a relatively small portion of local recreational activity uses, this area and other areas provide similar recreational hunting and fishing opportunities. This limitation is inconsistent with current management objectives and mitigations/commitments outlined in the *BAX EIS* (USARAK 2006-1). All recreational activities on DTA outside of the project area would continue, in accordance with USAG-FWA management policies.

3.3.10.3.2 Alternative B (Preferred Alternative)

Land Status, Management, and Use. Impacts on land management and use would be similar to those described for Alternative A. This alternative includes a larger area of military land, and essentially all of DTA-East. This area would be scheduled for 3 to 5 days each week and during that time, public use of all training areas would be unavailable. This would primarily affect recreational use, hunting, and subsistence activities that use resources on DTA-East.

Noise from weapons firing would be similar to Alternative A. Although there would be new firing and target points for several types of inert mortar rounds, inert rounds produce relatively little noise, and noise levels and the location of effects would be similar to Alternative A. The potential effects on surrounding land uses would be similar to those described above. Military activities is the planned purpose and use for the underlying land.

Public Access. Under Alternative B, access to training areas for public uses would be closed on about 3 to 5 days each week. Impacts would be similar to those described for Alternative A. This alternative would affect a larger portion of DTA-East, including TAs 501, 502, 503, 504, 505, 506, 507, 508, 510, 511, 512, 513, 514, and 515. The Richardson-Gerstle and 33-Mile Loop trails would be affected, as well as the trail network in TAs 512, 508, and 511.

USAG-FWA proposes mitigations to expand enforcement to control access to unsafe areas. Working with ADNR and BLM, USAG-FWA will adjust restrictions as needed and disseminate information and maps to the public in order to reduce the risks of inadvertent, incompatible public use.

Recreation. Impacts on recreation would be similar to Alternative A with additional areas with reduced access in the eastern half of DTA-East.

3.3.10.3.3 No Action Alternative

There would be no changes to the current project area under the No Action Alternative. Therefore, no additional impacts on land use, public access, or recreation would occur.

3.3.10.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse but not significant impacts. The following mitigations are proposed to reduce these impacts.

- Land Use – Management
 - The military will maintain an open dialogue with ADNR and BLM to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the ROD for this EIS.
 - The Army will expand enforcement to control trespass in DTA-East for the expanded operations.
- Land Use – Access
 - The Army will update information and maps available to the public on the USARTRAK website to identify changes in public access restrictions for the expanded Army training activities within USAG-FWA training areas.

3.3.11 Infrastructure and Transportation (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for a general discussion of infrastructure and transportation. The ROI for the BAX does not intersect with ground-based transportation and utilities resources. As a result, no impacts on this resource area are expected and it is not further analyzed for this proposal.

3.3.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.3.12.1 Affected Environment

The proposed area for the BAX would include areas under the new restricted airspace and nearby communities. The proposed action area is south of Delta Junction in the Southeast Fairbanks Census Area. Therefore, the ROI for the BAX Proposed Action Alternative includes the portion of Southeast Fairbanks Census Area underneath the airspace as well as the surrounding communities.

POPULATION

The Southeast Fairbanks Census Area is located in the Interior Region of Alaska. There are 18 communities in the census area. The majority of the population lives in the communities of Deltana,

Tok, Delta Junction, and Big Delta (ALARI 2011-3). The nearest cities to the proposed action are the city of Delta Junction, less than 5 NM to the northwest; the Army Community of Fort Greely, approximately 1 NM to the west-northwest; and Healy Lake Village, approximately 15 NM to the east. The population of the Southeast Fairbanks Census Area totaled 7,029 persons in 2010. In 2009, the population of Delta Junction was 1,128 persons; of Fort Greely, 413; and of Healy Lake, 10 (ALARI 2011-3). GIS-derived data on the number and percentage of the population under the combined airspace are listed in [Table 3-46](#).

Table 3-46. Population Under the Proposed Restricted Airspace, 2010

Region	Total Population ¹	Alternative A		Alternative B	
		Number	Percent	Number	Percent
Southeast Fairbanks Census Area	7,029	167	2.38	255	3.63

¹ GIS-derived calculations.

Source: USCB 2010-1.

HOUSING

The Southeast Fairbanks Census Area had 3,915 total housing units in 2010, representing an average annual increase of 1.96 percent from 2000 levels. The 5-year estimated median housing price in the Southeast Fairbanks Census Area was approximately \$160,000 (see [Table 3-47](#)).

Table 3-47. Housing Characteristics in the Region of Influence, 2010

Region	Total Housing Units	Percent Occupied	Median Housing Price (dollars)
Southeast Fairbanks Census Area	3,915	66	159,300

Source: USCB 2010-1, 2011-3.

ECONOMIC ACTIVITY

In 2009 (the most recent data available), the Southeast Fairbanks Census Area had a total employment of 3,777 jobs. Between 2001 and 2009, employment in that area increased at an average annual rate of 5.4 percent. The largest source of employment in the census area was the government and government enterprises industry, which includes Federal, military, State, and local government. The government and government enterprises industry accounts for approximately 23 percent of total employment. Other major industries in the ROI include retail trade (8.7 percent), and administrative and waste services (8.7 percent) (BEA 2011-1).

In 2009, the Southeast Fairbanks Census Area had a lower per capita income than the State of Alaska. However, per capita income in the census area increased at a faster rate, with an average annual increase of 7 percent between 2001 and 2009.

The top employers in the census area and nearby cities, as reported by the Alaska Department of Labor and Workforce Development, are listed in [Table 3-48](#).

KEY INDUSTRIES

Key industries in the Southeast Fairbanks Census Area that include mining, recreation and tourism, and civilian aviation.

Mining

The Pogo Mine, one of the largest mines in Alaska, is approximately 37 miles northeast of Delta Junction in the Southeast Fairbanks Census Area. The mine was constructed in 2006 and began commercial production in 2007. Based on current reserves, the mine is expected to have a 10-year life (ADNR 2011-14). Approximately 2,500 tons of ore are processed per day. Access to the mine is via a 49-mile all-season road from Richardson Highway. In 2011, the workforce totaled 320 persons (ADNR 2011-14).

Table 3-48. Major Employers in the Region of Influence, 2009

Delta Junction	Fort Greely	Southeast Fairbanks Census Area
Delta/Greely School District	Kaya Associates, Inc.	Delta/Greely School District
Chugach/Alutiiq, JV	Chugach/Alutiiq, JV	Chugach/Alutiiq, JV
Boeing Service Company	Delta/Greely School District	State of Alaska (excludes University of Alaska)
First Student Management, LLC	Northrop Grumman Space/Mission System Company	Alaska Gateway Schools
Norcon, Inc.	ITT Corporation	Family Medical Center
Family Medical Center	Winn Management Group, LLC	Boeing Service Company
IGA Food Cache, LLC	McDonnell Douglas Corporation	Kaya Associates, Inc.
State of Alaska (excludes University of Alaska)	Family Medical Center	Fast Eddy’s Pizza
McDonnell Douglas Corporation	Doyon Security Services, LLC	Norcon, Inc.
Bechtel Construction Company	Computer Sciences Corporation	IGA Food Cache, LLC

Notes: Does not include military jobs associated with bases, and major employers for Healy Lake in 2009 were not available.

Source: ALARI 2011-3.

Recreation and Tourism

There are many recreation and tourism areas in the Southeast Fairbanks Census Area. The recreational areas closest to the proposed action include the Delta Junction Bison Range Area, the Tanana Valley State Forest, the Delta River and the Tanana River. The Delta Junction Bison Range Area is a 90,000-acre State bison range established in 1979 by the Alaska Legislature. The bison herd and the Delta Junction State Bison Range are important contributors to the Delta Junction economy. Approximately 40 hunting parties travel to the range each year to hunt bison, and, with each group spending approximately \$300 in the community, the annual economic benefit to the area from hunters totals \$12,000 (ADFG 2012-2). Other uses of the bison range include timber sales, cross-country skiing, agricultural research, dog sledding, trapping, wildlife viewing, and fishing (ADFG 2012-2).

The Tanana Valley State Forest is a 1.81-million-acre forest that lies mostly within the Tanana River Basin. The forest is open to many types of commercial activity and recreational opportunities, such as mining, gravel extraction, oil and gas leasing, timber production, grazing, hunting, fishing, trapping, and other activities (ADNR 2011-3).

Also located in the Southeast Fairbanks Census Area is the city of Delta Junction. Delta Junction, located at the intersection of the Alaska and Richardson Highways, offers many amenities for highway travelers and is thus a boon to the area’s tourism industry. For more detailed information on recreation in the ROI, see Section [3.3.10.1, Recreation](#) subsection.

Civilian Aviation

Several public and private airports are located within 10 NM of the proposed airspace. Civilian aviation contributes significantly to the local economy and is heavily relied upon for travel, safety, firefighting, recreation, hunting, mining, oil and gas development and supplies. For more-detailed information on civilian aviation in the ROI, see Section [3.3.1.1](#) of Airspace Management and Use.

3.3.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.3.12.3 Environmental Consequences

3.3.12.3.1 Alternative A

Under Alternative A, changes to military airspace and underlying land to support hazardous zones associated with live weapons delivery would not directly affect non-military land and would not involve any ground-disturbing construction or changes to personnel. The airspace structure for the Proposed Action is to convert the area currently established as the BAX CFA to a restricted area. Although there is no available data on the number of civilian general aviation flights that traverse the current BAX CFA, it is expected that the number of civilian flights traversing the area is low since there are no population centers in the BAX CFA. Therefore, potential impacts on civil aviation are not expected to adversely impact socioeconomic resources. However, as previously stated in Section [3.3.1.4](#), any specific impacts or limitations this proposal may have on IFR and VFR air traffic would be examined in an FAA aeronautical study with subsequent consultation with USARAK and civil aviation concerns on those operational mitigations that may be needed to help minimize impacts. Mitigations to minimize impacts to civil aviation could subsequently minimize adverse impacts to socioeconomic resources associated with this proposal. USAG-FWA will pursue manning and funding to study enhancements required to expand situational awareness for general aviation (see Section [3.3.12.4](#)). Any subsequent improvements would benefit civilian air traffic engaged in commercial business.

As previously stated in Section [3.3.2.2](#), noise impacts would be considered significant if noise levels exceeding 130 dB PK 15(met) or 62 dB CDNL were to impact areas not owned by the DoD and that were not already affected by these noise levels under baseline conditions. Approximately 167 persons within the Southeast Fairbanks Census Area were identified under the proposed airspace. However, noise levels exceeding 62 dB CDNL or 130 dB PK 15(met) would not extend beyond range boundaries into residential areas. Additionally, the area is currently exposed to low-level overflights and noise associated with military aircraft. Therefore, these activities are not expected to adversely impact populations or socioeconomic resources.

The increase in military activities at the BAX may decrease the amount of time public access is permitted. As described in Chapter [2.0](#), the BAX and the proposed restricted airspace would be active for a maximum of 238 days at all times of the year. A restriction in recreational and public access could result in economic impacts. The economic impacts of a delay or restriction in access when the BAX is active cannot be quantified due to the many factors to be considered in estimating such impacts. However, based on a review of environmental consequences for other resources, potential for high or significant adverse impacts would be mitigated based on SOPs, BMPs, and continuation and expansion of existing mitigation measures. Therefore, the potential for significant impacts on socioeconomic resources is anticipated to be low.

3.3.12.3.2 Alternative B (Preferred Alternative)

Under Alternative B, the proposed restricted area extends beyond the boundaries proposed for Alternative A. Although, there is a greater percent of the Southeast Fairbanks Census Areas under the proposed airspace under Alternative B, as shown in [Table 3-54](#), noise is not expected to exceed 62 dB CDNL or 130 dB PK 15(met) beyond range boundaries into residential areas. Similar to Alternative A, and previously stated in Section [3.3.1.4](#), any specific impacts or limitations this proposal may have on IFR and VFR air traffic would be examined in an FAA aeronautical study with subsequent consultation with USARAK and civil aviation concerns on those operational mitigations that may be needed to help minimize impacts. Since civil aviation contributes significantly to the local economy, mitigations identified in the study that would minimize adverse impacts to civilian aviation could subsequently minimize adverse impacts to socioeconomic resources. USAG-FWA will pursue manning and funding to study enhancements required to expand situational awareness for general aviation (see Section [3.3.12.4](#)). Any subsequent improvements would benefit civilian air traffic engaged in commercial business.

3.3.12.3.3 No Action Alternative

Under the No Action Alternative, socioeconomic resources would remain as described under current existing conditions and no additional impacts would occur.

3.3.12.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse impacts. The following mitigation is under consideration to reduce these impacts.

- Pursue manning and funding for any enhancements required to expand situational awareness for air traffic in and around training areas for general and military aviation. Complete an internal study to identify coverage gaps in new SUAs and restricted airspace. One possible alternative is the establishment of a U.S. Army Airspace Information Center.

3.3.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.3.13.1 Affected Environment

The ROI for the BAX proposed action would be the same as that for RLOD. The proposed action would be located in a State nonsubsistence area; under State regulations, subsistence activities would not be permitted. The Federal subsistence area would be the same as that described for RLOD; thus, the game management and subsistence fishing areas would be the same. Information on subsistence harvests on Federal public land near these communities is not available. More-detailed information on species and habitats in the ROI is provided in Section [3.3.8](#), Biological Resources.

3.3.13.2 Impact Assessment Methodology

The general methodology for evaluating subsistence is described in Section [3.1.13.2](#).

3.3.13.3 Environmental Consequences

As described under the RLOD proposed action, the communities of Healy Lake, Dot Lake, and Dry Creek are ranked as high in dependence on subsistence resources. The communities of Big Delta and Junction are ranked as low in dependence on subsistence resources.

3.3.13.3.1 Alternative A

The area beneath the proposed restricted airspace is in the vicinity of two major highways and access to subsistence activities would not be heavily dependent on aircraft access. Therefore, potential impacts on civil aviation are not expected to adversely impact access to subsistence resources (see Section [3.3.1](#)). Additionally, the area is currently exposed to low-level overflights and noise associated with military aircraft. Therefore, these activities are not expected to adversely impact wildlife populations or the availability of the subsistence species (see Section [3.3.8](#)).

The increase in military activities at the BAX may decrease the amount of time public access is permitted. As described in Chapter [2.0](#), the BAX and the proposed restricted airspace would be active for a maximum of 238 days at all times of the year. For rural Alaska residents that regularly harvest subsistence resources within the public access areas of DTA (in which BAX is located), an increase in restrictions to public access could be an adverse impact. However, the nearby vicinity has large tracts of Federal land in which subsistence activities are permitted and do not have the same access restrictions as a military installation. Therefore, no significant impacts to subsistence activities are expected as defined by ANILCA.

3.3.13.3.2 Alternative B (Preferred Alternative)

Potential impacts to subsistence resources and activities would be similar to those described under Alternative A. The area beneath the airspace is in the vicinity of major highways and subsistence resources could be accessed by means other than civil aircraft. The area is currently exposed to noise from military activities; therefore, the expansion of the airspace under this alternative is not expected to adversely impact wildlife. The amount of public access to the affected area may decrease, but there are other subsistence resources and areas in nearby Federal and State lands. Therefore, no significant impacts to subsistence activities are expected as defined by ANILCA.

3.3.13.3.3 No Action Alternative

Under the No Action Alternative, no restricted airspace would be established. Existing military activities would continue. Subsistence activities would remain as they are currently practiced.

3.3.13.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse but not significant impacts. The following mitigation is proposed to reduce these impacts.

- Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and those outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA.

3.3.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.3.14.1 Affected Environment

The affected environment for the BAX proposal includes the Southeast Fairbanks Census Area. [Table 3-49](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children. Note that the table characterizes existing population groups in the affected environment at a general level of detail and does not indicate whether the proposal would create an environmental justice effect.

3.3.14.2 Impact Assessment Methodology

General methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#).

Table 3-49. Minority Population, Low-Income Population and Children by Area

Battle Area Complex (BAX)					
Area	Total Population	Percent Low-Income	Percent Minority	Percent Alaska Native	Percent Children
Southeast Fairbanks Census Area	7,029	11.6	21.3	11.5	26.3
State of Alaska	710,231	9.6	35.9	14.8	26.4

Note: Except for the low-income data, which are based on the 2005-2009 American Community Survey conducted by the Census, numbers represent 2010 decennial Census data.

Source: USCB 2010-1, 2010-2.

3.3.14.3 Environmental Consequences

3.3.14.3.1 Alternative A

For the BAX Alternative A, the proposed restricted area would extend over the BAX and CACTF. Impacts such as airspace management, noise, land use, and socioeconomics would be less than significant or mitigated to this level. For example, recreation impacts are mitigable with seasonal adjustments in training schedules. Impacts from BAX Alternative A would not create disproportionately high and adverse environmental or health effects on minority or low-income populations or children.

3.3.14.3.2 Alternative B (Preferred Alternative)

For BAX Alternative B, the proposed restricted area would extend over the BAX and CACTF as well as the CFA. Impacts for the Alternative B would be similar to Alternative A on military lands, though there would be less impact for land use, recreation and access on non-military land than Alternative A. There would be greater impacts on VFR air traffic because the restricted area is larger than proposed for Alternative A. Significant impacts could be reduced or mitigated. Impacts from BAX Alternative B would not create disproportionately high and adverse environmental or health effects on minority or low-income populations or children.

3.3.14.3.3 No Action Alternative

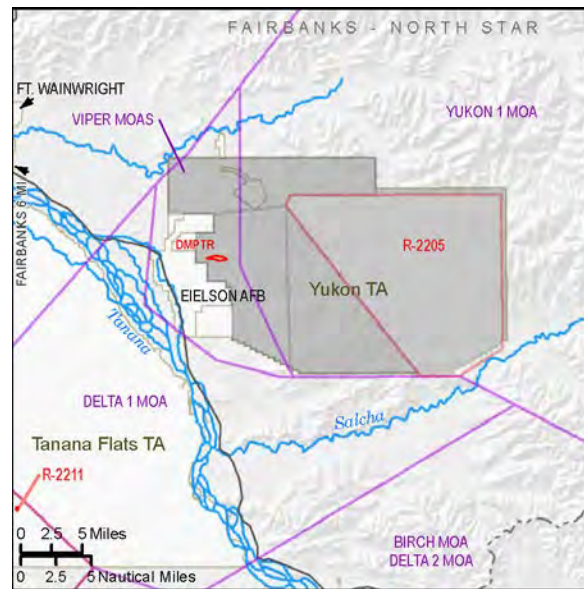
For the No Action Alternative, no restricted airspace and new target areas would be established and military activities would continue. There would be no additional disproportionately high and adverse environmental or health effects on minority and low-income populations or children.

3.3.14.4 Mitigations

No mitigations are identified for this resource.

3.4 EXPAND RESTRICTED AREA R-2205, INCLUDING THE DIGITAL MULTI-PURPOSE TRAINING RANGE (DEFINITIVE)

This proposal would build on existing facilities and expand the restricted area in YTA to allow participation by multiple functions—ground and air forces working together. Existing use of the DMPTR area in R-2205 is currently very constrained in terms of the types, levels, and intensity of training that can be undertaken. The footprint for the Expand Restricted Area R-2205 proposal overlies an area of 251,100 acres (392 square miles), which is all military-owned. (Refer to the gray-shaded area in the map to the right.) This action involves changes to military airspace and utilizes underlying DoD land to support joint training associated with weapons training exercises using primarily inert munitions. Because this action primarily affects military land, involves no ground-disturbing construction, and no personnel changes, impacts on physical resources, water, and cultural resources are expected to be low. In response to future mission change and force structure modernization, it is likely that the Army and other services currently training in Alaska will be required to adapt their training and testing on JPARC lands and ranges. The Army will evaluate any additional modernization and enhancement of JPARC capabilities based on future service requirements in accordance with NEPA.



Following the impact assessment for each resource, the final mitigations are listed that have been selected by the Army and Air Force to avoid, reduce, or implement management actions for potential significant adverse impacts from implementing the proposed action. These are included to provide the public and other agencies with necessary information on the final mitigations proposed by the Army and Air Force.

3.4.1 Airspace Management and Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.

3.4.1.1 Affected Environment

The following sections describe representative baseline uses of all military and civil airspace within the region encompassing the proposed expansion of R-2205 over YTA and the Stuart Creek Impact Area, as shown in [Figure 3-29](#), to accommodate DMPTR mission activities. This figure shows this airspace proposal relative to the aeronautical features depicted on the Fairbanks Sectional Chart and the Alaska IFR Enroute High Altitude (H-1) Chart that may be potentially affected by this proposal (FAA 2011-1, 2011-2, 2011-3).

MILITARY AIRSPACE USE

Existing SUA in the area to be encompassed by the proposed R-2205 expansion includes R-2205 and the Yukon 1 MOA/ATCAA, as shown in [Figure 3-29](#). A large portion of the airspace to be encompassed by this proposal includes the Combined Arms Live-Fire Exercises (CALFEX) north and south CFAs, which border the western boundary of the existing R-2205 and overlie the YTA from the surface up to FL210. These CFAs are used for small arms firing, artillery, ground-launched antitank guided missiles, and mortars.

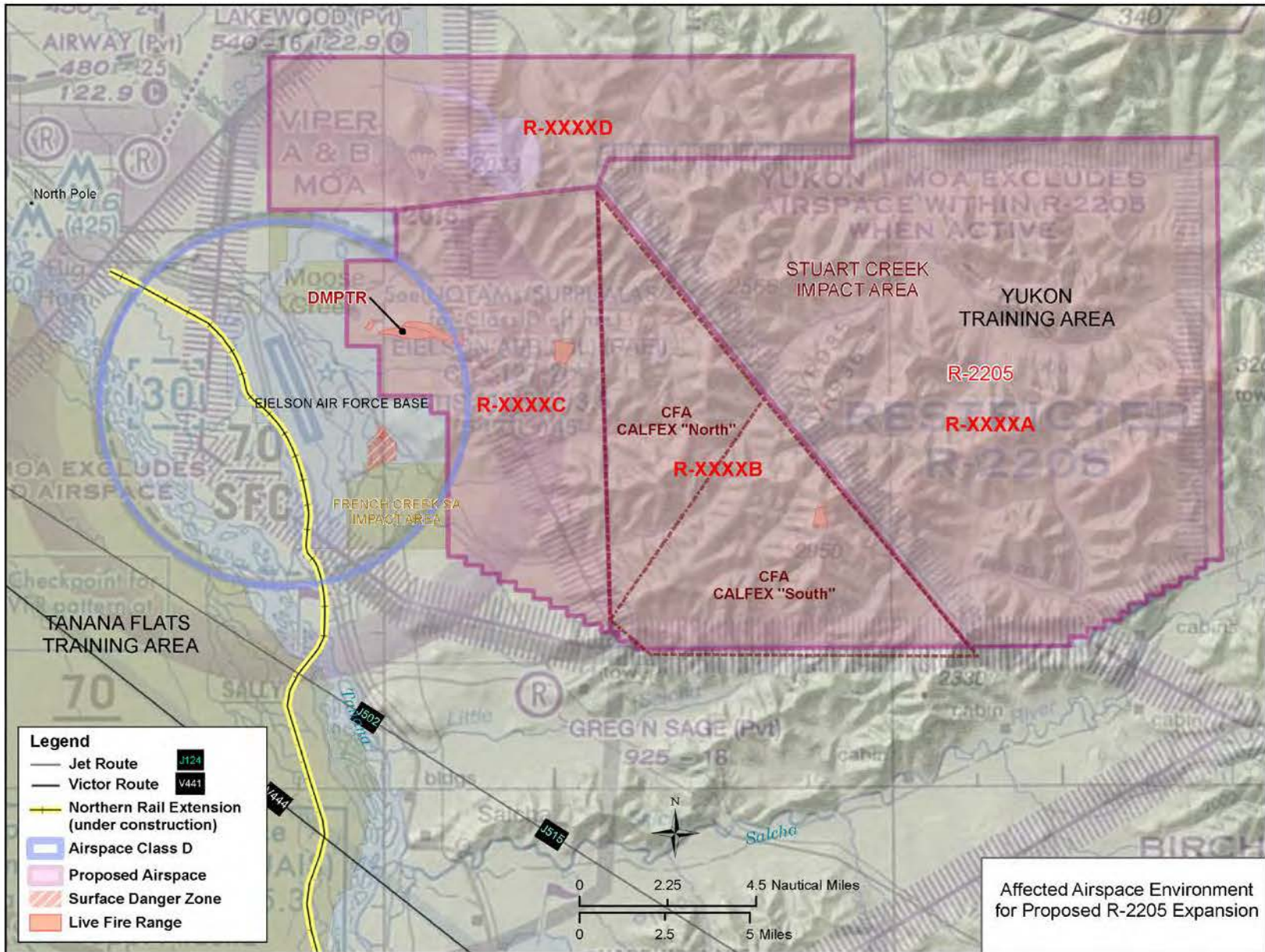


Figure 3-29. Affected Airspace Environment for Proposed R-2205 Expansion

The representative number of operations conducted in R-2205 and the Yukon MOA is noted in Chapter [2.0](#) and Appendix D, *Airspace Management*. R-2205 covers a portion of the larger YTA in the area and contains numerous target arrays throughout this restricted area as well as the Army's Stuart Creek Impact Area. The majority of Army helicopter operations in Alaska originate from Fort Wainwright with about a third of those conducted in YTA. A majority of those operations occur between 50 and 1,000 feet AGL. Expansion of R-2205 would provide additional protected airspace for weapons footprints and varied flight maneuvers while conducting hazardous operations in the DMPTR. It is not anticipated that USARAK helicopter operations at this range would change significantly above current levels performed by these based rotary-wing aircraft. The restricted area C and D subdivisions would be activated as needed for launching UAV flights from the Husky and Firebird airfields to Stuart Creek. All subdivisions would include hazardous activities when active. The average number of UAV flights occurring in these subareas would be generally the same as noted in Chapter [2.0](#) for the proposed UAV corridors.

R-2205 and the Yukon 1 MOA are scheduled for separate use but may be scheduled together, as needed, to accommodate R-2205 mission activities. The Yukon 1 MOA is one of the highest used MOAs within the JPARC airspace complex for both routine and MFE flight activities due to its proximity to Eielson AFB and both the R-2202 and R-2205 ranges. The vast majority of these operations and greater use of these two restricted areas and the ranges contained within are by Eielson AFB-based aircraft (Air Force 1997-1).

CIVIL AVIATION AIRSPACE USE

The western portion of the R-2205 expansion would overlap portions of the Eielson AFB Class D airspace and the Fairbanks Terminal Radar Service Area in which the Control Tower manages air traffic operations to/from this airfield. The Fairbanks TRACON is responsible for controlling air traffic within this terminal airspace from 6:00 a.m. to 11:00 p.m. daily with the Anchorage ARTCC assuming control of this airspace during those hours when the TRACON is not normally staffed. Both Eielson AFB and Fort Wainwright AAF have operating control towers that manage airfield operations during the hours those airfields are open. The following sections address the different IFR and VFR air traffic uses in this region

Federal Airways

No Federal airways transit through the existing R-2205 or through that airspace proposed for the R-2205 expansion. The closest airway to this restricted area, V444/T232, is located approximately 8-10 NM from the proposed southwest boundary. FAA data indicate this airway has two average daily flights which are typically transiting at 8,000 feet MSL and above. This airway and others within this general region, as well as those routes used by ATC to transition aircraft to/from Fairbanks International, and other airfields in the immediate area are sufficiently distant from R-2205 so as not to be affected by R-2205 flight activities. Prior planning and coordination between the FAA and using military agencies have helped minimize any impacts during those MFE and other high-use periods that could be problematic for management of military and civil air traffic operations in this area.

Jet and RNAV Routes

The only high altitude route (FL280 and above) that transits within the existing/proposed R-2205 airspace boundaries is Northern Control Area (NCA) Route 22 which has a reported six average daily flights. The closest jet route to this existing/proposed airspace is J502-515 which is approximately 8-10 NM from the proposed southwest boundary and reported to have 6-12 average daily flights. Mission activities in R-2205 have had little effect on NCA 22 and J502-515 use and transition routes to/from Fairbanks International due to standard ATC procedural and coordination efforts that ensure separation of these activities from this IFR air traffic.

VFR Air Traffic

Most of the civil aviation aircraft operations discussed in Section [3.1.1](#) for this general region operate from Fairbanks International with the majority of this airport traffic (approximately 68 percent) being general aviation VFR air traffic. The Alaska Highway and Birch VFR corridors west/south of the existing and proposed R-2205 airspace are commonly used by VFR aircraft flying between Fairbanks and various destinations throughout this area. The extent of VFR air traffic operating in the specific area of the proposed R-2205 expansion is unknown; however, limited access to YTA and the few scoping comments on this proposal suggest this is not a high-use area for these aircraft. Airport operations for Fairbanks and Bradley Sky Ranch provide some indication of the level of air traffic that typically operates between these airports and other public and private airfields outside the areas of the proposed airspace.

Public Airports and Chartered Private Airfields

The public airports and chartered private airfields within the vicinity of the existing and proposed expanded R-2205 are among those listed in Appendix D, *Airspace Management*, to include Fairbanks and Bradley Sky Ranch. Current military operations in the existing airspace have little impact on these airports and other public and private airfields in this region. The potential future aviation growth of public airports in this region is discussed in Section [3.1.1](#).

3.4.1.2 Impact Assessment Methodology

The methodology described in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.1 was considered, as appropriate, to assess potential impacts of this proposed action on other airspace uses in the affected region.

3.4.1.3 Environmental Consequences

3.4.1.3.1 Proposed Action (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The proposed use of the expanded R-2205 restricted area, as described in Section [2.1.4](#), would provide increased restricted protective airspace for YTA helicopter mission activities and those activities currently conducted in the CALFEX CFAs. This would also provide restricted airspace for UAV flights within the YTA. This expanded area would also provide additional restricted airspace for Air Force aircraft maneuvering in conjunction with flight missions currently conducted in the existing R-2205. Information provided in Chapter [2.0](#) for this proposal indicates the projected annual days of use for the different types of training and capabilities. Multiple training activities may be scheduled and conducted within the different subareas on the same day, normally Monday – Friday, for an estimated total 300 days annually. The airspace may be scheduled up to 24 hours on any particular training day.

Helicopter operations in the expanded airspace and YTA would not change significantly from current levels. The R-2205 expansion would provide a larger area and greater flexibility for use of this more general airspace by both USARAK and Air Force flight requirements.

Use of this airspace for transitioning UAVs between the Husky and Firebird DZs and the DMPTR site and the Stuart Impact Area would be generally the same as indicated for the proposed UAV corridors. Only those specific subdivisions would be activated as needed for each launch location.

It is not anticipated that the overall number of USARAK helicopter operations or Air Force sortie missions would increase significantly above current representative levels with the creation of this restricted airspace. The separate subdivisions of this proposed expansion would be activated only as needed to support the specific missions to be conducted. The scheduled and real-time use of this restricted area would be available via the SUAIS and other aforementioned advisory services.

CIVIL AVIATION AIRSPACE USE

The following discusses how this restricted airspace proposal may affect the different civil aviation airspace uses in the affected area, to include the Class D airspace surrounding Eielson AFB and Fairbanks International.

Federal Airways

Several airways are located within this region with V444/T232 being in closest proximity but sufficiently clear of this proposed airspace so as not to be impacted by this expansion. While this action would have little impact on the airway traffic, it may affect that airspace used by Fairbanks TRACON to route airway or other IFR traffic to/from the Fairbanks, Eielson AFB, or Fort Wainwright. The extent of any such impacts would depend on the planned and scheduled use of the different subdivisions. Military aircraft operations within the existing and proposed airspace would not increase significantly above current representative levels. Those procedures currently used by the FAA and responsible military agencies to coordinate use of the existing SUA would be further examined in the FAA aeronautical study to identify potential impacts and any further mitigation measures needed to minimize impacts on the ATC system.

Jet/RNAV Routes

J502-515 transits southwest of the proposed airspace and is sufficiently distant from the boundary so as not to be impacted by this proposal. The NCA 22 track crosses this airspace at FL280 and above, with the proposed altitude of this restricted area being FL310. En route aircraft operating above FL280 would not be impacted by this active airspace. Aircraft below this ceiling altitude may be impacted to the extent that ATC may have to assign a higher altitude or alter their course if necessary to maintain separation from the higher altitude R-2205 flight operations. As noted above, any potential impacts of this proposal on IFR air traffic using NCA-22 or the jet/RNAV routes in this region would be examined as part of the FAA aeronautical study.

VFR Air Traffic

The Birch, Alaska Highway, and other flyways commonly used by VFR air traffic are sufficiently distant from the proposed airspace areas so as not to have any impacts on this traffic when these subdivisions are active. The extent to which any VFR aircraft may occasionally operate within or near YTA for recreation, hunting, or other purposes is not known, however, the few scoping comments on this proposal suggest such flights are minimal and not affected by this active airspace. While USARAK may still require use of the YTA for training activities in September when this area is made available for moose hunting, MFEs are not permitted within during this time frame.

Public Airports and Private Airfields

No public airports or private chartered airfields are within the area of the proposed R-2205 expansion although the Fairbanks and Bradley airports and several chartered private airfields are within the general region of this proposed airspace.

As noted previously, this proposed airspace borders the Eielson Class D airspace with the R-XXXXC subdivision extending within this airspace to the DMPTR site. The FAA has indicated that the R-2205 expansion in the areas surrounding Eielson AFB would have some adverse effects on the published arrival and departure procedures used to separate Eielson aircraft from other air traffic in the area. It may also limit FAA options for routing VFR and IFR air traffic in the Fairbanks, North Pole, and Fort Wainwright areas. Therefore, procedures for planning and coordinating the use of the C subdivision would have to be formally defined in an agreement between Eielson AFB airfield management/ATC and the FAA Fairbanks Approach to ensure the scheduled activation of this restricted area and its interactions with the Class D airspace do not adversely affect air traffic operations within this terminal airspace. The manner in which this would be achieved and stipulated in such an agreement would be examined in the FAA aeronautical study of this proposal.

3.4.1.3.2 No Action Alternative

This alternative would maintain the existing R-2205 without any expanded airspace and would therefore have no additional impacts on the current military and civil aviation uses of this airspace.

3.4.1.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse impacts. The following mitigation is proposed to reduce these impacts.

- Pending the FAA's study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals.

3.4.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.4.2.1 Affected Environment

The area beneath the proposed expanded R-2205 is almost entirely over YTA, which comprises several active small- and large-caliber weapons ranges. The number of rounds of large-arms munitions fired annually in R-2205 under baseline conditions is listed in Appendix E, *Noise*, in Table E-10. Under baseline conditions, large-caliber weapons firing at DMPTR result in noise levels exceeding 62 dB CDNL in undeveloped portions of Eielson AFB ([Figure 3-30](#)). However, these noise levels do not extend beyond DoD land. As shown in [Figure 3-31](#), peak noise levels exceed 115 dB in several areas of non-DoD-owned land along the northern edge of YTA. Topography in this area strongly affects noise propagation patterns.

Viper A/B MOA, Yukon 1 MOA, and R-2205 overlie the affected area and support combat training for several types of military aircraft. Noise levels generated during overflights by several aircraft that frequently use these airspace areas are listed in Appendix B, Table B-7. Time-averaged noise levels in areas beneath these airspace areas are listed in [Table 3-56](#). Ground vehicles operating in YTA generate locally elevated noise levels. However, ground vehicle noise is less intense than aircraft noise levels and munitions usage noise levels which occur in the same areas, and is not considered in detail in this analysis (see Appendix E, *Noise*, Figure E-1, Table E-2, and Table E-4).

3.4.2.2 Impact Assessment Methodology

The methods used to assess noise impacts associated with proposed training in the BAX, which are described in Section [3.3.2.2](#), were also used to assess noise impacts associated with proposed training in the expanded R-2205. Noise impacts would be considered significant if noise levels exceeding 130 dB PK 15(met) or 62 dB CDNL were to impact areas not owned by the DoD and that were not already affected by these noise levels under baseline conditions.

3.4.2.3 Environmental Consequences

3.4.2.3.1 Proposed Action (Preferred Alternative)

The total number and types of munitions fired into the Stuart Creek Impact Area would not be expected to change. However, the expansion of R-2205 would allow a much larger range of weapons types to be used at DMPTR. DMPTR is a nonduded range and would continue to support training with inert munitions only under the proposed action. The number of rounds of large-arms munitions fired annually in R-2205 under the proposed action is listed in Appendix E, *Noise*, in Table E-10. Time-averaged munitions noise levels under baseline conditions and the action alternative are shown in [Figure 3-30](#). Noise levels exceeding 62 dB CDNL do not extend beyond the boundaries of DoD-owned land. The area affected by peak noise levels (exceeding 115 dB PK 15(met)) would increase slightly under the proposed action (see [Figure 3-31](#)). However, the non-DoD land area exposed to this noise level would not change in extent under the proposed action. Noise impacts would not exceed the significance thresholds established for this action.

3.4.2.3.2 No Action Alternative

Under the No Action Alternative, R-2205 would not be expanded and no changes to training operations would occur. No additional noise impacts would occur under the No Action Alternative.

3.4.2.4 Mitigations

Users of DMPTR and R-2205 would continue to follow all noise mitigation procedures currently in effect. No new mitigations are proposed.

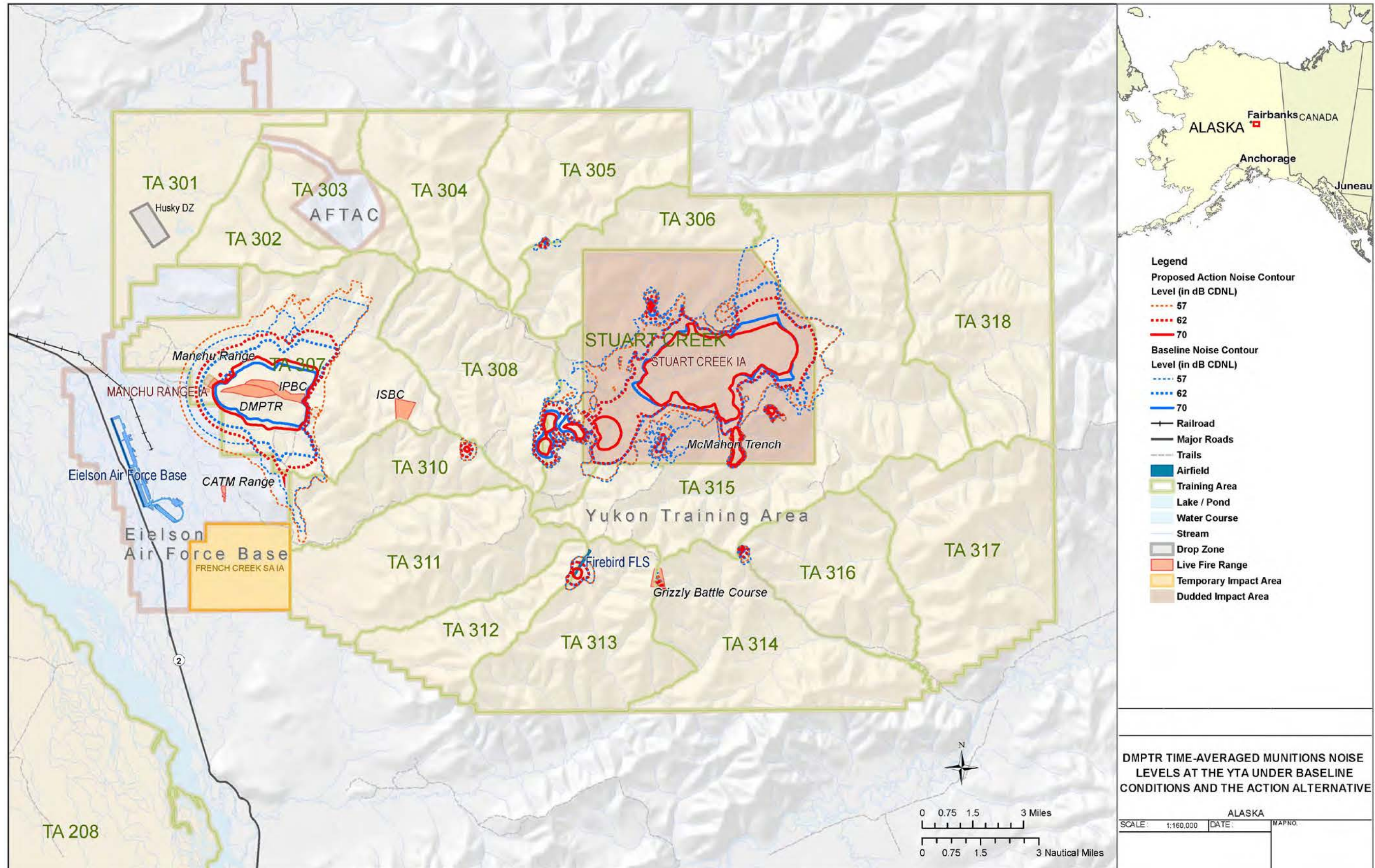


Figure 3-30. Digital Multi-Purpose Training Range Time-Averaged Munitions Noise Levels at Yukon Training Area Under Baseline Conditions and the Action Alternative

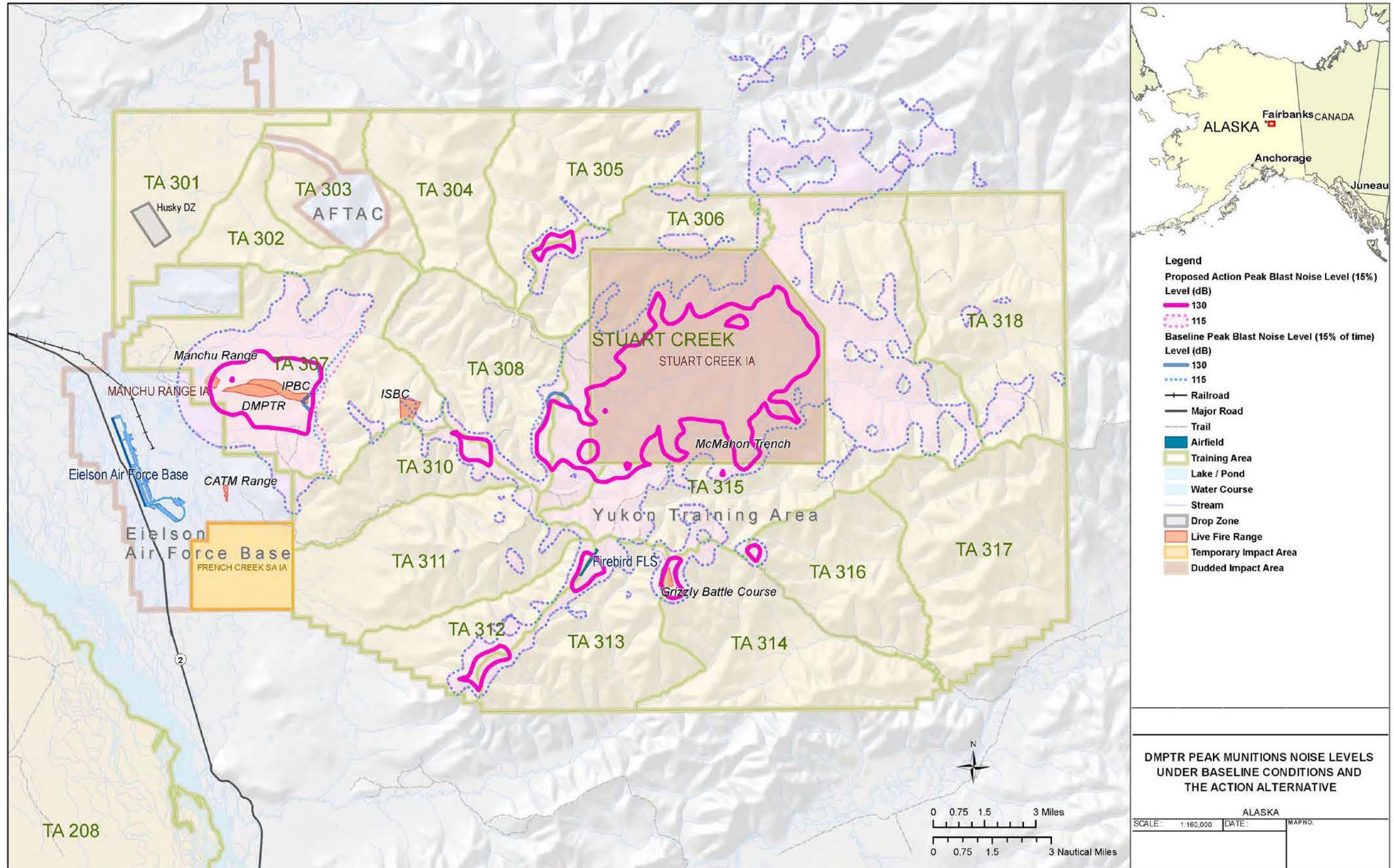


Figure 3-31. Digital Multi-Purpose Training Range Peak Munitions Noise Levels Under Baseline Conditions and the Action Alternative

3.4.3 Safety

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.3.

3.4.3.1 Affected Environment

FLIGHT SAFETY

The flight safety risks currently experienced in this affected environment are similar to what was discussed for the other existing airspace. Thus, the rates of aircraft mishaps and bird-aircraft strikes at the lower altitudes used by birds and military aircraft would be generally the same as experienced in the other airspace. The potential for interactions between military and civil aviation aircraft within this area is relatively low, since VFR aircraft more typically operate in the higher-use areas south and west of this airspace; therefore, the potential for near misses and midair collisions with nonparticipating aircraft is low. Those standing Air Force and USARAK programs dictating flight safety procedures and practices in all airspace uses help ensure a safe operating environment for all aircraft types/activities within YTA and R-2205 airspace.

GROUND SAFETY

The ROI for ground safety is YTA. For this alternative, the environment affected by activities involved in range safety and control, UXO and munitions safety, public access control, and fire and emergency response would not differ from that previously described for RLOD Alternative A in Section [3.2.3.1](#).

3.4.3.2 Impact Assessment Methodology

FLIGHT SAFETY

The impact assessment methodology discussed in Section [3.1.3.2](#) was used to address the potential impacts of this proposal.

GROUND SAFETY

Impact assessment methodology is the same as in Section [3.2.3.2](#).

3.4.3.3 Environmental Consequences

3.4.3.3.1 Proposed Action (Preferred Alternative)

FLIGHT SAFETY

The potential for aircraft Class A mishaps would be low to moderate since the projected operations and flying hours would not increase significantly from representative baseline levels. The area covered by the R-2205 western expansion has little or no populace, therefore, the potential for aircraft mishaps in this area is minimal.

The potential for a near miss/midair collision would be low to moderate for this proposed action since nonparticipating aircraft do not normally operate in this area and would be further restricted from entering this airspace when active. Those measures previously discussed for obtaining the active status of this restricted area would provide greater awareness of the presence of military aircraft operating within this airspace.

The potential for any bird/wildlife-aircraft strikes during low-altitude flights in this affected area would be low. The measures already in place for maintaining awareness of any heightened bird activities and flight safety risks are as discussed previously.

Standing aircraft mishap prevention programs and emergency response capabilities would address any potential flight safety risks associated with this proposed airspace.

GROUND SAFETY

Range Safety and Control – There are no environmental impacts associated with range safety and control for this alternative not previously discussed under Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences. Consequently, significant impacts are not expected to occur.

Unexploded Ordnance and Munitions Safety – There are no environmental impacts associated with UXO and munitions safety for this alternative not previously discussed under Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences. Consequently, significant impacts are not expected to occur.

Public Access Control – There are no environmental impacts associated with public access control for this alternative not previously discussed under RLOD, Alternative A, Environmental Consequences. Consequently, significant impacts are not expected to occur.

Fire and Emergency Response – There are no environmental impacts associated with fire and emergency response for this alternative not previously discussed under Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences. Consequently, significant impacts are not expected to occur.

3.4.3.3.2 No Action Alternative

FLIGHT SAFETY

Flight safety risks and the continuing safety programs in effect to address these risks would remain the same as currently exists and no additional impacts would occur.

GROUND SAFETY

No change in ground operations would occur under the No Action Alternative and therefore, no additional impacts on public health and safety would occur.

3.4.3.4 Mitigations

FLIGHT SAFETY

Further mitigation measures to be considered for this action would be identified with completion of the FAA aeronautical study. The preceding analysis of effects on flight safety has identified potential adverse impacts. The following mitigation is proposed to reduce these impacts.

- Continue efforts to comply with the respective Service formal flight safety programs, outlined in directives/regulations with supplements, that dictate the aircrew responsibilities and practices aimed at operating all manned and unmanned aircraft safely in existing modified and new SUAs.

GROUND SAFETY

The preceding analysis of effects on this resource has identified potential adverse impacts. The following mitigation is proposed to reduce these impacts.

- The Army would expand enforcement to control trespass in YTA for the expanded R-2205 activities.

3.4.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.4.4.1 Affected Environment

The proposed expansion of R-2205 over the DMPTR would be located in FNSB, Alaska. As shown in Figure B-4 in Appendix B, portions of FNSB (Cities of Fairbanks and North Pole) are designated as nonattainment areas for the NAAQS for PM_{2.5} and as maintenance areas for the NAAQS for carbon monoxide. FNSB is in attainment for all other NAAQS. The proposed action would not impact the nonattainment or maintenance portions of the borough. Table B-12 in Appendix B, Section B.4.3 provides a summary of the estimated 2008 annual emissions for FNSB.

3.4.4.2 Impact Assessment Methodology

The general methodology for assessing air quality impacts is described in Appendix B, Section B.4.5. However, the proposed action would not result in an increase in aircraft operations or in the amount of ordnance delivered from baseline levels. The proposed action would expand the area that would be affected by potential emissions that could reduce overall ground level impacts.

PSD CLASS I AREA IMPACT ANALYSIS

The closest PSD Class I area to the proposed action area is Denali National Park, which is approximately 80 miles from the DMPTR expansion area. This EIS provides a qualitative analysis of the potential for proposed activities under Alternatives A and B to affect visibility within this area.

3.4.4.3 Environmental Consequences

3.4.4.3.1 Proposed Action (Preferred Alternative)

CONSTRUCTION

There would be no construction activities associated with the expansion of R-2205.

OPERATIONS

The area proposed for the expansion of the R-2205 airspace is in attainment of all NAAQS, and the proposed action would not increase aircraft operations or munitions usage. Thus, there was no need to quantify emissions that would occur as a result of the proposed expansion of R-2205. As there will be no net increase in criteria pollutant or HAP emissions, the operation of R-2205 under the proposed action would result in less-than-significant air quality impacts.

Since the R-2205 action would not result in an increase in emissions, it would not result in any impacts on Denali National Park.

3.4.4.3.2 No Action Alternative

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at R-2205. Therefore, the No Action Alternative would not result in any additional air quality impacts.

3.4.4.4 Mitigations

Since the impacts are expected to be insignificant, no actions to reduce air quality impacts are being proposed.

3.4.5 Physical Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5.

The proposed action aligns the outer restricted area boundary more precisely with the government-controlled YTA lands to provide the expanded protective airspace needed for encompassing YTA hazardous activities. The proposed action does not require any additional land the loss of which would potentially affect physical resources.

Given that the proposed action involves minimal to no disturbance of new or additional land surface, no beneficial or adverse impacts on physical resources within the study area of this proposed action are expected to occur, and no further analysis is required.

3.4.6 Water Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6.

The proposed action involves the new expansion of restricted area over R-2205 in YTA, including the existing DMPTR. The training would use existing impact areas for the discharge of ordnance from aircraft within the proposed restricted area, while being controlled from the existing DMPTR. The proposed action involves minimal increase in the disturbance of the land surface per existing baseline conditions through the use of ordnance; therefore, this action is expected to have minimal or negligible adverse impacts on water resources within the study area, and no further analysis is required.

3.4.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.4.7.1 Affected Environment

The proposed action aligns the outer restricted area boundary more precisely with the government-controlled YTA lands to provide the expanded protective airspace needed for encompassing YTA hazardous activities. The proposed action does not require any additional land that would potentially be subject to the creation of additional hazardous materials and waste. The training and exercises that would occur within the proposed restricted area would make use of existing impact areas for the discharge of ordnance from aircraft within the proposed restricted area, while being controlled from the existing DMPTR.

MUNITIONS RELATED RESIDUE

The expenditure of live ammunition or detonations has the potential to release hazardous chemicals or other elements, such as heavy metals, into the environment. However, because the proposed training and exercises in this restricted area would use existing impact areas, munitions related baseline information is not relevant to the NEPA analysis.

CONTAMINATED SITES

There are no CERCLA Superfund sites listed on the National Priorities List in the realigned boundary area. Similarly, there are no sites on the Contaminated Sites Program (CSP) list within the realigned boundary area (USAEC 2010).

3.4.7.2 Impact Assessment Methodology

The general methodology for evaluating hazardous materials and waste is described in Sections [3.1.7.2](#) and [3.2.7.2](#).

3.4.7.3 Environmental Consequences

3.4.7.3.1 Proposed Action (Preferred Alternative)

GENERAL HAZARDOUS MATERIALS AND WASTE

The proposed action aligns the outer restricted area boundary more precisely with the government-controlled YTA lands to provide the expanded protective airspace needed for encompassing YTA hazardous activities. The proposed action would utilize existing on-the-ground range structure and would involve no new construction in the realigned boundary area. In addition, other than surficial ground disturbance associated with ground maneuvers of vehicles, no excavations or ground disturbance would occur. There are no known contaminated sites located in the realigned boundary area. Therefore, no beneficial or adverse impacts would occur as a result of potentially encountering known or unknown contaminated soil.

As part of the proposed action, vehicles would be used on the ground during training. There is the potential for accidental chemical release from refueling or maintenance activities during training activities. Spills of petroleum products or hazardous waste could potentially penetrate into on-site soils resulting in soil and/or groundwater contamination, causing an adverse impact. The Army would manage hazardous materials/waste in accordance with AR 200-1, *Environmental Protection and Enhancement* (Army 2007), which provides guidance on oil and hazardous substance spills, hazardous materials management, and the Installation Restoration Program (IRP). This would include continuing to gather baseline data and monitor soils, surface water, and groundwater in and around target and impact areas for evidence of contamination and changes over time. In addition, AR 200-1 requires the development of a spill prevention, control, and countermeasures (SPCC) plan, which would provide protective and corrective measures for accidental releases of hazardous substances or petroleum products. Fort Wainwright personnel may apply regulations in addition to AR 200-1 that are not designed to supersede, but rather work as a complement to those policies and procedures. Range personnel would follow BMPs, which would, among other things, limit refueling activities and storage within 100 feet of any stream, lake or river crossing.

In addition to the relevant Army regulations, Fort Wainwright personnel would comply with Federal regulations that govern hazardous waste including the Resource Conservation and Recovery Act (RCRA), CERCLA, Toxic Substances Control Act, and the CWA, as well as State of Alaska regulations, including 18 AAC 62-Hazardous Waste, 18 AAC 75-Oil and Other Hazardous Substances Pollution Control, and

18 AAC 75.341-Soil Cleanup Levels. The risk of petrochemical spills is expected to increase under the proposed action due to the need to transport fuel and perform refueling operations in the field to support training requirements. However, due to the infrequency of such activities, combined with existing procedures and controls, the proposed action would result in the potential for adverse, but not significant impacts.

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

There is the potential for munitions related hazardous materials impacts in association with this alternative. Munitions fragments and residues would be generated as a result of live-fire action. However, training would use existing impact areas for the discharge of ordnance from aircraft within the proposed restricted area, such that no adverse munitions-related chemical release impacts on the environment would occur. These impact areas would be managed in accordance with current Federal, State of Alaska, Air Force, and Army regulations for the management, safe handling, and disposal of hazardous waste and materials associated with live and inert ordnance and UXO, as the result of training exercises at R-2205. Mitigations would continue current monitoring and management (see Section 3.4.7.4) to identify actions, as needed, to mitigate any future environmental threats from munitions contamination.

3.4.7.3.2 No Action Alternative

Under the No Action Alternative, there would be no realignment of the outer restricted area boundary. Therefore, additional hazardous material-related impacts would not occur.

3.4.7.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse impacts. The following mitigation is proposed to reduce these impacts.

- The Army may augment the effort for their existing program to identify possible munitions contamination at impact areas on YTA. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams.

3.4.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.4.8.1 Affected Environment

The proposed project area for DMPTTR occurs in YTA within the Yukon-Tanana Uplands ecoregion (see Figure B-11 in Appendix B). This ecoregion includes broad, rounded mountains of moderate height supporting vegetation dominated by conifers and deciduous forests, and tussock and scrub bogs in valley bottoms. The proposed project area for this action occurs in airspace over YTA, for which general biological resources are described in detail below. YTA currently includes 2,386 acres of small-arms ranges, 25,854 acres of major weapons system ranges, and 229,035 acres of maneuver training areas (USARAK 2004-1).

Major land types that occur within the DMPTR project area are presented in [Table 3-50](#).

Table 3-50. Land Types Associated with the Digital Multi-Purpose Training Range Project

Spruce and Broadleaf Forest	Open and Closed Spruce Forest	Spruce Woodland/ Shrub	Closed Spruce Forest	Open Spruce Forest/ Shrub/Bog Mosaic	Tall Shrub	Tall and Low Shrub
Acres (hectares)						
145,538 (58,897)	18,234 (7,379)	16,935 (6,853)	1,460 (591)	36,916 (14,939)	28,401 (11,493)	3,589 (1,452)

Source: USGS 1991

Important known wildlife habitats that are present in the DMPTR project area are presented in [Table 3-51](#) and included in Figure B-13, Figure B-15, and Figure B-16 in Appendix B.

Table 3-51. Wildlife Habitats Associated with the Digital Multi-Purpose Training Range Project

Moose Winter, Rutting, Calving Habitat	Caribou Winter Habitat	Waterfowl General Habitat
Acres (hectares)		
82,330 (33,318)	26,440 (10,700)	5,200 (2,105)

Source: RDI 2005-2, 2005-3, 2005-4, 2005-6

YTA contains habitat for moose for important fall, winter, and spring life cycle activities that include breeding/rutting (fall), foraging (winter), and calving (spring). All three of these activities overlap on lands that occur in the eastern portion of the training area, likely following stream, bog, and/or wetland habitat. A portion in the northeastern corner of YTA is used by caribou in winter as well. Waterfowl generally use migratory and stopover habitat that occurs off YTA to the west along the Tanana River and to the south along the Salcha River, but some habitat overlaps with YTA. Anadromous fish in the vicinity are only known to occur in a small stream segment in the northern portion of YTA and in another segment just outside the eastern boundary.

3.4.8.2 Impact Assessment Methodology

The general methodology for evaluating biological resources is described in Section [3.1.8.2](#).

3.4.8.3 Environmental Consequences

3.4.8.3.1 Proposed Action (Preferred Alternative)

As proposed for BAX, the DMPTR expansion of the existing R-2205 would primarily differ from current activities by enabling additional air-to-ground ordnance use in the expansion areas. These activities may have localized effects to the vegetation and wildlife present within YTA, which is defined for this section as the ROI. It is assumed that allowable firing positions would change from within the existing R-2205 to within the expanded R-2205 at ranges specified in helicopter gunnery training regulations. However, no new impact areas would be created.

No new impact areas would be established and no substantially different impact types would be introduced into the DMPTR restricted areas as a result of this project. As for ongoing training, effects to biological resources would be localized and vegetation communities as a whole would not be expected to

be adversely affected. The vegetation classes present in YTA are not unique or considered sensitive communities, but are widespread across the project region.

As with vegetation classes, wildlife habitats present within the project area are not associated with sensitive, endangered, or threatened species, and are generally widely available within the project region. Wildlife species in the area are generally exposed to and may be habituated to military activities. Also, the majority of the proposed expanded restricted areas overlies western YTA, which does not contain important wildlife breeding, wintering, or nesting habitats (as shown in Figures B-11, B-13, and B-14, in Appendix B, *Definition of the Resources and Regulatory Settings*). With standard restrictions on wildlife disturbance in place from past NEPA projects, sensitive wildlife at critical seasons, including moose, should be adequately protected on Army lands. Therefore, no significant effects to vegetation communities or wildlife populations are expected from the expansion of DMPTR restricted areas within YTA.

Overall impacts to biological resources from expansion of R-2205 are expected to be adverse but not significant, and would be further reduced given implementation of mitigation and impact avoidance measures summarized below.

3.4.8.3.2 No Action Alternative

The current amount of localized ground disturbance (from training, vehicles, and live fire) would be expected to continue and wildlife using the area would be expected to remain active in occupied habitats. Localized vegetation impacts from training would continue as under current existing conditions.

3.4.8.4 Mitigations

The preceding analysis has identified adverse impacts to biological resources. The following mitigations are proposed to reduce these impacts.

- Continue to monitor effects of military training including overflights on select wildlife species (especially herd animals, waterfowl, and raptors) and fisheries during critical seasons such as breeding, young-rearing, and migration. Use knowledge to develop and implement strategies to minimize disturbance to priority wildlife in existing and new SUAs and restricted airspace. This would help natural resources and range managers to coordinate training schedules that minimize impacts on wildlife populations.
- Continue pilot and soldier education awareness of sensitive wildlife species habitats and seasonal behaviors utilizing mapping and discuss procedures to reduce disturbances and to increase safety by reducing potential for aircraft strikes.
- Continue effort to conduct a detailed study to assess the impacts and effects of noise on wildlife, particularly key species such as caribou and bison, during critical life cycle seasons. Use information to include protection requirements within a noise management plan.
- The Army may augment the effort for their existing program to identify possible munitions contamination at impact areas on YTA. This program initiates the collection of baseline data to determine the location, extent, and potential migration of munitions contamination in soils, surface water, and groundwater. Based on these preliminary results, a long-term monitoring program could be developed to assess cumulative impacts to the withdrawal lands from ongoing military activities. These results could identify areas needing restoration, activities that pose the greatest environmental threat, and the potential mitigation measures to be implemented. Extensive and expedient investigations may be conducted in those areas considered to be exposure pathways, such as streams.

- The military will maintain an open dialogue with ADNR, BLM, ADFG and USFWS to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the ROD for this EIS.

3.4.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.4.9.1 Affected Environment

YTA, the ROI for this action, consists of 249,552 acres within the western portion of the Yukon-Tanana Uplands section of the Northern Plateau physiographic province of interior Alaska (USARAK 2010-4).

ARCHAEOLOGICAL RESOURCES

There are 20 known prehistoric archaeological sites in YTA, most of which were found by C.E. Holmes in 1979 and CEMML archaeologists between 2002 and 2005 (USARAK 2010-4). Ten of these sites are known to exist beneath the proposed restricted airspace (USAG-FWA 2012). Of the 20 recorded archaeological sites in YTA, 10 have been determined to be ineligible for inclusion in the National Register, and 10 have not been evaluated (USARAK 2005-3, USARAK 2010-4, USAG-FWA 2012).

TRADITIONAL CULTURAL PROPERTIES AND ALASKA NATIVE CONCERNS

No known traditional cultural properties are located in YTA, but the Army continues to work with Alaska Native tribes to identify traditional cultural properties and other cultural sensitive sites. Several studies have indirectly addressed the possible presence of such properties, but no direct inventory on Army land exists (USARAK 2005-3). In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed new restricted area (see Section [1.6.5](#)).

3.4.9.2 Impact Assessment Methodology

The methodology used for the analysis of potential impacts on cultural resources for the proposed expansion of R-2205 to include the DMPTR area is the same as the methodology applied to the analysis of the Fox 3 MOA Expansion/Paxon MOA action (Section [3.1.9.2](#)).

3.4.9.3 Environmental Consequences

3.4.9.3.1 Proposed Action (Preferred Alternative)

The proposed action is to expand R-2205 in YTA to include the DMPTR as well as the airspace currently designated as the Combined Arms Live Fire Exercise (CALFEX) north and south CFAs which overlay the YTA ([Figure 2-9](#)). The proposed action would align the outer restricted area boundary more precisely with the government-controlled YTA lands to provide the expanded protective airspace needed for encompassing YTA hazardous activities. Projected use of the proposed R-2205 restricted area would be as described in [Table 2-13](#).

No impacts are anticipated to cultural resources from the expansion of R-2205 and its training use. The annual average noise levels under the proposed airspace reclassification are not expected to noticeably change as a result of increased training activities, and would not be sufficient to damage any archaeological or historic architectural sites (see Appendix E, *Noise*). In compliance with Section 106 of

the NHPA, the Army has completed consultation with the Alaska SHPO, who concurred with the Army's determination of no adverse effect to historic properties. All compliance requirements for consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities has been completed.

No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed expansion of R-2205. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed expanded restricted area (see Section [1.6.5](#)).

3.4.9.3.2 No Action Alternative

Under the No Action Alternative there would be no expansion of R-2205 to include the DMPTR or CALFEX in YTA. Existing use of the restricted area would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.

3.4.9.4 Mitigations

Mitigations for impacts to cultural resources are established through NHPA Section 106 consultation pursuant to 36 CFR 800. In compliance with Section 106 of the NHPA the Army has completed consultation with the Alaska SHPO and complied with all requirements for consultation with potentially affected Alaska Native Tribes, ANCSA corporations, and Tribal government entities to identify historic properties that may be affected, including TCPs, and develop management actions and mitigation measures to resolve any adverse effects, if required. It has been determined that significant adverse impacts to cultural resources and Alaska Native Tribes, ANCSA corporations, and Tribal government entities would not occur by the implementation of this proposal.

In accordance with AR 200-1, all NHPA Section 106 consultation has been completed. In the event that previously unrecorded or unevaluated cultural resources are encountered, the Army would manage these resources in accordance with the NHPA and other Federal and State laws, Air Force, and DoD regulations and instructions, and DoD American Indian and Alaska Native Policy (DoD 1998).

3.4.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.4.10.1 Affected Environment

LAND STATUS, MANAGEMENT AND USE

Land Status

All the land within the expanded R-2205 footprint (250,208 acres) is withdrawn for military use. Most of the adjacent land is State-owned. A small amount of municipal land occupies the southwestern most corner of the proposal area.

Land Management and Use

Military land in the proposal area is within YTA, and falls under the management of USAG-FWA. YTA occupies about 257,280 acres of the Middle Tanana Valley approximately 16 miles east-southeast of Fort Wainwright. Eighteen training areas and numerous artillery and mortar firing points occupy about 226,855 acres. About 30,427 acres is classified as duded impact area and is used to support individual crew/team training and up to large scale exercises by the Air Force and Army (USAEC 2010).

Land within YTA is used foremost for military purposes. Public recreation is allowed in nonduded areas when military operations are not taking place. Some timber harvesting occurs on YTA under the management of the USAG-FWA Forrester, in cooperation with BLM. Since the DOI maintain vegetation rights on the withdrawn lands, commercial timber harvest is done through advertised timber sales, in accordance with BLM stipulations (USARAK 2006-2).

Within YTA there is one State of Alaska closed mineral order, and six State-permitted prospecting sites. At least one of these sites produced a small amount of gold (value of \$3,000) before closing for lack of profitability. No activity currently occurs on any of these prospecting sites. Also, YTA has a network of supporting infrastructure (such as roads, communications lines, utilities) some above and some below ground. These infrastructure alignments restrict activities that can occur on the surface (without causing damage to the asset). Several existing rights-of-way, leases, and permits are also in effect for regional and national infrastructures, such as communications lines and towers, transmission lines, and energy pipelines. Off-road vehicle and other weight-bearing activities and ground disturbance are not allowed to interfere with the maintenance work pad that parallels the pipeline.

State-owned land borders the proposal area. Most of the surrounding State land is managed for habitat values, (for fish wildlife), and for public recreation, including hunting and fishing. Specifically, land on the northeast border of YTA is within the Chena River State Recreation Area. The privately-owned Chena River Springs Resort, which features lodging and dining facilities, a geothermal demonstration project, greenhouses, sled dog kennel, and hot springs is a jumping off point for back country recreation of all types. State lands to the south are managed for fish and wildlife habitat and forestry. Some of the surrounding State land is categorized for disposal and available for future recreational settlements or fee-simple homesteads. About 3,000 acres have been designated for agricultural sale and settlement immediately to the north of YTA. The State legislatively designated Tanana Valley State Forest occupies large parcels interspersed around YTA (see [Figure 3-32](#)).

Private and borough-owned land parcels are located south of YTA and along the Salcha River. To the west of YTA is a mixture of private and municipal land comprising the outskirts of North Pole and Moose Creek. Eielson AFB adjoins the western boundary of YTA. To the north of the proposed airspace are the communities of Two Rivers and Pleasant Valley along the Chena River.

PUBLIC ACCESS

Ground Access

The proposal area includes about 1 mile of RS 2477/RST 322, the Salcha-Caribou Sled Road. The location of the roads and other trails in the R-2205 proposal area are shown in [Figure 3-32](#).

There are two primary entrances to YTA: one through Eielson AFB via the Manchu Lake Road, and one via Johnson Road, which connects to the Richardson Highway farther south. YTA is subject to temporary closures based on training schedules. Closures are posted on the USARTRAK system.

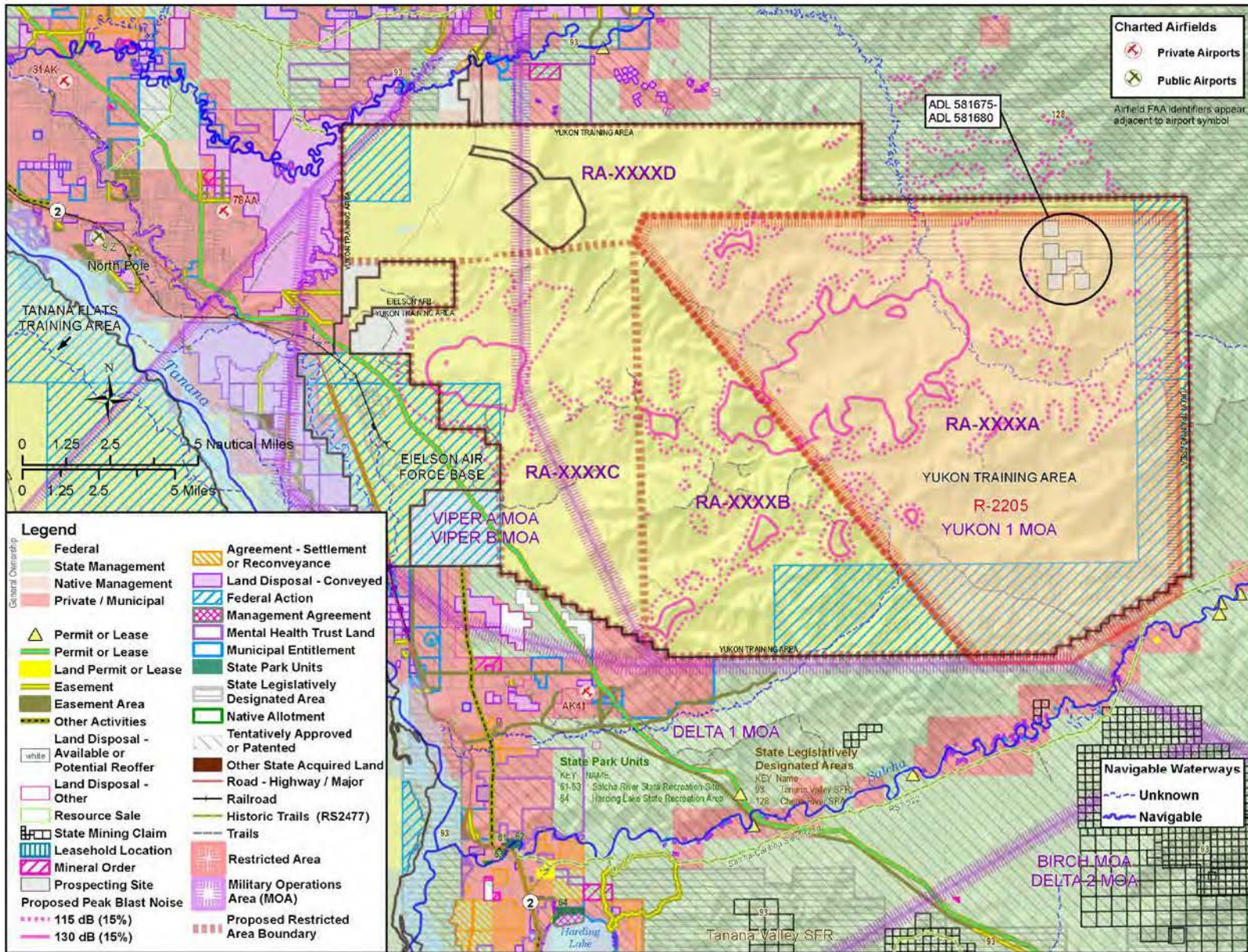


Figure 3-32. Land Status and Special Use Areas Around Expand R-2205 Proposal Area

Source: ADNR 2007, ADNR 2009-1, ADNR 2009-2, ADNR 2009-3, ADNR 2011-2, ADNR 2011-3, ADNR 2011-7, ADNR 2011-8, ADNR 2011-13

The Stuart Creek, Manchu, and French Creek Impact Areas are permanently closed to the public. Stuart Creek, French Creek, Globe Creek, and part of the South Fork Chena River lie within the impact area. In addition, within YTA, the Military Operations in Urban Terrain Site, the Air Force Technical Applications Center, Bravo and Charlie Batteries, the Manchu Impact Areas, all established training sites and structures, and the Arctic Survival Training Site are all off limits to public access and use. Gates and warning signs are posted at the two roads that pass into the Stuart Creek Impact Area. The restricted access signs state that there is an active Army Impact Area and that the area contains UXO. Signs are placed every 200 meters around the perimeter of the Air Force Technical Applications Center on Transmitter Road. These signs state that the area cannot be entered without permission from the Air Force Technical Applications Center Commander. The Trans-Alaska Pipeline corridor through YTA is closed to ORRV traffic.

Aerial Access

A list of the public and private airports and airstrips in the area surrounding the proposal footprint is provided in [Table 3-52](#). The table indicates what communities and special use areas are served by chartered airports and airfields in the DMPTR proposal area.

FAA regulations require the military to generate NOTAMs when there exists a hazard to the safe flow of air traffic. R-2205 over the Stuart Creek Impact Area is closed to all civilian aviation during periods of scheduled activity. A detailed discussion of airspace associated with the proposed action is provided in Section [3.4.1.1](#).

Navigable and Public Waters

There are numerous creeks and water bodies underlying the proposed R-2205. None of these water bodies are designated navigable and public waters. The Salcha River and the Chena River, both designated navigable waters, are outside but close to the project area (see [Figure 3-32](#)) (ADNR 2011).

RECREATION

There are no Federal special use areas within the proposal area. One State special use area, Chena River State Recreation Area, is located adjacent to the expanded R-2205 proposal area footprint. The recreational use associated with this area is described in Appendix I, *Land Use, Public Access, and Recreation*. Most of the surrounding State lands support the general range of recreational uses permitted by ADNR.

Public recreation on YTA is governed by the same regulations as described for DTA and TFTA in Section [3.2.10.1](#), [Recreation](#) subsection.

Recreation on Military Lands

Public recreational uses on YTA are similar to those on DTA-West, DTA-East and TFTA, as described in Sections [3.2.10.1](#) and [3.3.10.1](#). Hunting takes place under the management and regulations of the ADFG. USAG-FWA public access procedures apply as previously described. The following recreational activities take place in YTA:

Hunting

Hunting is popular in YTA, which is within GMU 20B. The demand for moose hunting in this GMU is high and moose is the most popular game species taken. A total moose harvest between 900 to 1,000 in GMU 20B is about average over the last several years (ADFG 2010-1).

Table 3-52. Charted Airports Serving the Digital Multi-Purpose Training Range Proposal Area

Charted Airport	Areas Underlying or Within 20-mile Service Radius	
	Community	Special Use Area
Greg 'n Sage Airport	Badger CDP, North Pole City, Moose Creek CDP, Salcha CDP, Eielson AFB, CDP, Harding-Birch Lakes CDP	Tanana Valley SFR, Chena River, SRA, Harding Lake SRA, Birch Lake SRA, Salcha River SRS
Chena Hotsprings Airport	Chena Hot Springs	Steese National Conservation Area, Birch Creek Wild and Scenic River, Chena River SRA
Scotts Airport	Harding-Birch Lakes CDP, Salcha CDP, Eielson AFB CDP	Tanana Valley SFR, Harding Lake SRA, Salcha River SRS, Birch Lake SRS, Birch Lake SRS
Lakewood Airport	North Pole, Fox, Fairbanks, Two Rivers CDP, Moose Creek CDP, North Pole City, Eielson AFB CDP, Fairbanks City, Badger CDP, Fox CDP, Pleasant Valley CDP, Chena Ridge CDP, Ester CDP, Salcha CDP, Goldstream CDP, South Van Horn CDP, Steel Creek CDP, Farmers Loop CDP, College CDP	Goldstream PUA, Tanana Valley SFR, Creamer's Field Migratory Waterfowl Refuge, Chena River SRA, Chena River SRS,
Dalrymple's Airport	Ester, Fairbanks, North Pole, Fox, North Pole City, Badger CDP, Pleasant Valley CDP, Moose Creek CDP, Fairbanks City, Chena Ridge CDP, Fox CDP, Goldstream CDP, Farmers Loop CDP, Two Rivers CDP, College CDP, Salcha CDP, Steel Creek CDP, Ester CDP, Eielson AFB CDP, South Van Horn CDP	Goldstream PUA, Chena River SRA, Tanana Valley SFR, Lower Chatanika River SRA, Chena River SRS,
Bradley Sky Ranch Airport	North Pole, Fox, Ester, Fairbanks, Steele Creek CDP, South Van Horn CDP, Salcha CDP, Pleasant Valley CDP, Two Rivers CDP, College CDP, Goldstream CDP, Eielson AFB CDP, Chena Ridge CDP, Badger CDP, Fox CDP, Moose Creek CDP, Ester CDP, North Pole City, Farmers Loop CDP, Fairbanks City	Chena River SRA, Goldstream PUA, Creamer's Field Migratory Waterfowl Refuge, Tanana Valley SFR, Chena River SRS
Moen's Ranch Airport	Ester, North Pole, Fox, Fairbanks, Two River CDP, Chena Ridge CDP, Chena Ridge CDP, Ester CDP, College CDP, Pleasant Valley CDP, Fairbanks City, Farmers Loop CDP, Moose Creek CDP, Moose Creek CDP, Eielson AFB CDP, North Pole city, Goldstream CDP, Steele Creek CDP, Badger CDP, Fox CDP, South Van Horn, CDP	Creamer's Field Migratory Waterfowl Refuge, Goldstream PUA, Tanana Valley SFR, Chena River SRS, Lower Chatanika River SRA

Note: Bold text indicates that the airport is under the proposed airspace for this proposal.

Key: CDP=Census Designated Place; CHA=Critical Habitat Area; PUA=Public Use Area; RMA=Resource Management Area; SFR=State Forest; SGR=State Game Refuge; SRA=State Recreation Area; SRS=State Recreation Site.

Source: FAA 2011-6; AirNav 2011.

Trapping

Trapping is allowed in YTA. Marten is the most common furbearer caught; fox and weasels are also successfully harvested.

Fishing

Fishing occurs in YTA. Manchu Lake is stocked by the ADFG and is accessible via Manchu Road. Horseshoe Lake has a natural population of northern pike and is accessed over an unimproved road. The

Chena River and Beaver Creek in the northeast portion of YTA offer catch-and-release arctic grayling fishing (USARAK 1999-1).

Trail Use

Trails within YTA are open for recreational activities, including hiking, biking, and snowmobiling. Camping and picnicking are not allowed on YTA.

ORRV

YTA contains approximately 90 miles of roads and trails used by the public, primarily for ORRV activity. ORRVs are allowed in YTA year-round, but are prohibited from the Stuart Creek Impact Area, Air Force Technical Applications Center, except for Beaver Creek Road, Bravo Battery on Quarry Road, Charlie Battery on Johnson Road, and the Firebird Assault Strip. ORRV users are required to check in using the USARTRAK system.

Other

Berry picking, wildlife viewing, cross-country skiing, and dog sledding are other recreational activities that occur within YTA. Beaver Creek, located in the northeast area of YTA, is used for dog sledding.

Recreation on Non-military Lands

Most of the land surrounding YTA is State land. Principal management of State land to the east of YTA is for fish and wildlife habitat and public recreation. State lands to the south are managed for fish and wildlife habitat and forestry (USARAK 1999-1). The Chena River State Recreation Area provides a range of summer and winter activities, including hiking, dog sledding, skiing, and access to hunting and fishing areas. The hot springs and associated lodge and cabins are very popular and used year-round by Alaska residents and U.S. and international visitors. The site is producing geothermal power and is becoming an educational setting as a self-sustainable community. Hunting is popular throughout this area within GMU 20B, particularly due to quality habitat and proximity to Fairbanks, and several larger communities such as North Pole, Moose Creek, Delta Junction, Salcha, Eielson AFB, Moose Creek, and Pleasant Valley.

3.4.10.2 Impact Assessment Methodology

The general methodology for evaluating land use, public access and recreation is described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The methodology for assessing impacts of this proposal on land use, public access, and recreation is described in Section [3.2.10.2](#) and [3.3.10.2](#).

3.4.10.3 Environmental Consequences

The primary issues and assumptions for this proposal are similar to those described the RLOD proposal in Section [3.2.10.3](#). The activities proposed for DMPTR with expanded restricted airspace would result in extremely limited time available for public access and use on YTA. Increased capabilities for munitions could also cause increased noise in areas surrounding Stuart Creek Impact Area and the DMPTR.

3.4.10.3.1 Proposed Action (Preferred Alternative)

The proposal involves the use of airspace and weapons firing at existing training areas, impact areas, and ranges. There would be no new areas exposed to surface disturbance; therefore, no impact to existing infrastructure, leases, rights-of way, or permits on military land on military or non-military land would result.

Effects of Noise on Land Use. The primary source of noise for this proposal is from weapons firing. Noise levels associated with the proposed restricted airspace and operations on YTA and the DMPTR are presented in Section 3.4.2.3. Noise contours (exhibited in Figure 3-30) show that all areas exposed to 62 dB CDNL (both current and proposed) are contained within YTA training areas, and are compatible with military uses. Under the proposal, the area exposed to 62 dB CDNL and greater would remain within military land, with a slight increase within Eielson AFB (from 126 to 230 acres). This would not extend as far as the housing areas on base. As such, no areas would experience incompatible impulsive noise levels from airspace and augmentation of the DMPTR capabilities.

Table 3-53 shows the acres affected by peak noise levels under the Expand R-2205 proposal. The table reveals that current firing activity on YTA already affects 62,686 acres of military land and about 5,047 of State land in the Chena River State Recreation Area (see Figure 3-30) with peak levels of 115 dB PK 15(met) or louder. Under this proposal, an increase of about 401 acres in areas exposed to these peak levels would occur, mostly on military land (389 acres) with only minimal extension onto State lands (12 acres). This minimal increase would not cause a perceptible change in noise exposure. An increase in frequency of individual impulsive events (reflected in the CDNL measurement) may annoy some persons engaging in outdoor activities but the proposal would cause little change to areas off the installation.

Table 3-53. Peak Noise Exposure Associated with the Expanded R-2205 Proposal Area

Location	Current 115 dB PK 15(met) Exposure (acres)	Proposed 115 dB PK 15(met) Exposure (acres)	Change (acres)
Military Land	62,686	63,075	389
Non-military Land			
State	5,047	5,059	12
Total (all lands)	67,733	68,134	401

Source: ADNR 2011-2

Effects on Land Use from Restricted Access. Currently, the only public uses taking place on YTA are recreational, including personal use and subsistence hunting, gathering and trapping, and some timber harvesting and wood cutting. With increased use of YTA for hazardous operations (up to 300 days per year), time available for these public uses and range management tasks, including vegetation management, restorative projects, research, monitoring, and surveys, would be very limited. Coordinated scheduling could minimize conflicts in arranging adequate time on range for management functions. Considering the extent of forested land in surrounding areas available for commercial and personal fire wood cutting, the loss of this area as a source for these resources would have a minimal adverse impact. Other public uses (for example, agriculture, or mining), do not take place on YTA and would not be impacted. The proposed action conforms with the priority use of withdrawn lands for military use. The impact of reduced access on YTA for hunting, fishing, and recreational uses is addressed below.

PUBLIC ACCESS

Civilian ground and air access is currently permitted within the proposal area with the exception of several off-limits areas, including the DMPTR and the Stuart Creek Impact Area. Under this proposal, civilian ground and air access would be restricted during activation of R-2205.

Military Land. Access to areas underlying the proposed R-2205 shown in [Figure 2-9](#) would be closed to civilians and nonparticipating military personnel during training activities. An increase in training activities would lead to more frequent closures of roads and trails (including the Salcha Caribou Sled Road (a RS-2477 trail) on YTA due to hazardous military activities. This may directly impact use of Manchu Road from Eielson AFB, Johnson Road from the Richardson Highway, and Salcha-Caribou Sled Road (a RS-2477 trail). Use of these routes is already limited by the military mission, but the proposal would further reduce their availability for gaining access onto YTA, and for through access to areas north of YTA. Impacts would be moderate, depending on the duration and timing of access closures. Working with ADNR and BLM, USAG-FWA will adjust restrictions as needed and disseminate information and maps to the public in order to reduce the risks of inadvertent incompatible public use (see Section [3.4.10.4](#)).

No chartered airports are located within the project area on military lands. Therefore, no direct impacts on air access would occur. The restricted airspace would continue to affect public air access across R-2205 within the project area during activation. An increase in training activities would lead to more frequent airspace closures for military purposes. Indirect impacts on temporal and spatial availability of airspace to public aviation are expected to be minor.

Non-military Land. Direct impacts on public ground access on surrounding non-military land and associated roads, or trails, would not occur. No chartered airports are located within the project area on non-military lands. Therefore, no direct impacts on air access would occur.

Navigable and Public Waters. No navigable and public waters are located within the project site. Two navigable rivers, The Salcha River and Chena Rivers, are located in the vicinity of the project area. However, access to these rivers will not be affected by the proposed action. Therefore, no direct or indirect impacts on navigable and public waters would occur.

RECREATION

Military Lands. No special use areas are located on military lands within the project area. Training frequency and closures within the project area would increase under this alternative. The amount of recreation that occurs in the proposal area is relatively low ([Table 3-34](#)) and current restrictions on use are already in effect.

The proposed training activities for DMPTR and YTA would greatly reduce the amount of time that training areas are available for public use and recreation. Even though training schedules are available on USARTRAK and the public can plan around them, substantially reduced access may have a minor adverse but not significant impact on recreation on YTA due to its relatively low use. Overall, the impact to land use, access, and recreation on YTA is moderate, but minor in the regional context.

Non-military Lands. There would be no impact to recreation from this proposal on surrounding non-military lands.

3.4.10.3.2 No Action Alternative

There would be no changes to the current project area under the No Action Alternative. Therefore, no additional impacts on land use, public access, or recreation would occur.

3.4.10.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse but not significant impacts. The following mitigations are proposed to manage these impacts.

- The military will maintain an open dialogue with ADNR, BLM, ADFG and USFWS to assess current conditions and needed adjustments in locations or temporal restrictions to avoidances and procedures put in place by the ROD for this EIS.
- The Army would expand enforcement to control trespass in YTA for the expanded R-2205 activities.

3.4.11 Infrastructure and Transportation (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for a general discussion of infrastructure and transportation. The ROI for the expansion of R-2205 does not intersect with ground-based transportation and utilities resources outside the boundary of military land that contain roads, circulation routes, and associated infrastructure to support training, logistics, operations, and maintenance within YTA. This proposal is therefore not further analyzed for this proposal.

3.4.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.4.12.1 Affected Environment

The proposed action would include areas under the airspace and nearby communities. DMPTR is located in YTA, which lies within the FNSB. Therefore, the ROI for DMPTR includes the portion of FNSB that is underneath the airspace and the surrounding communities.

POPULATION

The FNSB is located in the Interior Region of Alaska. There are 11 communities in that borough. The cities nearest to the area of the proposed action are Fairbanks and the city of North Pole, both less than 10 NM to the northwest of the proposed action. Fairbanks is the second largest city in the State and the heart of the Interior Region (FEDC 2010-1). In 2010, the total population of the FNSB was estimated at 97,581 persons. In 2009, Fairbanks had an estimated population of 32,506 persons, and the city of North Pole, 2,200 persons (ALARI 2011-5). There are approximately 166 persons under the proposed R-2205 expansion ([Table 3-54](#)).

Table 3-54. Population within the Defined Census Blocks under the Proposed Restricted Airspace, 2010

Region	Total Population ¹	Alternative A		Alternative B	
		Number	Percent	Number	Percent
Fairbanks North Star Borough	97,581	28	0.03	166	1.70

¹ GIS-derived calculations.

Source: USCB 2010-1.

KEY INDUSTRIES

This action primarily affects military land; thus, key industries in the Fairbanks North Star Borough that could be impacted by the proposed action recreation and tourism, military, and civilian aviation.

Recreation and Tourism

Outdoor recreation includes hunting, fishing, boating, hiking, camping, and observing wildlife. Recreational activities occur on Federal, State, and private land and contribute largely to the local communities. Businesses such as hunting and fishing guides, lodges, air taxis, and other tourist-related services benefit from recreational activities. TFTA and DTA have areas open to recreational users. Portions of the proposed action, in particular Parcel B (see [Figure 2-9](#)), cover the Chena River State Recreational Areas. For a more detailed description of recreation in the ROI, see Section [3.3.10.1, Recreation](#) subsection.

Military

The military plays an important role in the economy of the FNSB. There are two military installations in the FNSB including Fort Wainwright and Eielson AFB. Approximately 8,000 military members and 10,000 family members and retirees contribute to the economy. The economic impact of the military in Fairbanks is estimated to reach \$800 million annually (FEDC 2010-2).

Civilian Aviation

The Fairbanks International Airport is located in the FNSB and provides year-round air transportation for the borough residents. There are no public airports or private chartered airfields within the area of the proposed R-2205 expansion, but there are several chartered private airfields within the general region of the proposed airspace. Civilian aviation contributes significantly to the local economy and is heavily relied upon for travel, safety, firefighting, recreation, hunting, mining, oil and gas development, and supplies. For more detailed information on civilian aviation, see Section [3.4.1.1](#) of Airspace Management and Use.

3.4.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.4.12.3 Environmental Consequences

3.4.12.3.1 Proposed Action (Preferred Alternative)

The population within the defined census block of the proposed restricted airspace is 166 persons. Based on the census data, it is difficult to define how many persons under the proposed restricted airspace reside on military land or non-military land since the large size of the census block, in which the restricted airspace is included, covers both. Under the assumption that all 166 persons identified within the census block of the proposed restricted airspace do not reside within the military land, then there would be no persons exposed to noise levels exceeding 62 dB CDNL since these levels do not extend beyond the boundaries of DoD-owned land. The area affected by peak noise levels (exceeding 115 dB) would increase slightly. The non-DoD land area exposed to this noise level would not change in extent under this alternative.

Key economic industries in the area that could be impacted by VFR and IFR air traffic include recreation and tourism activities and military activities associated with Eielson AFB. The extent to which any VFR aircraft may occasionally operate within or near YTA for recreation, hunting, or other purposes is not known, however, the few scoping comments on this proposal suggest such flights are minimal and not affected by this active airspace.

As noted in the airspace management discussions, this proposal may have potential effects on Eielson AFB air traffic operations and other air traffic in the region. Means for managing this airspace and air traffic would require that processes be outlined in procedures and agreements to permit joint use of the airspace.

Potential civil aviation impacts associated with this action may include slightly increased flight distances and increased flight time in order to avoid the restricted airspace. To the extent that they would occur, these potential aviation impacts would result in economic impacts due to additional operating costs (primarily related to increased fuel use) associated with avoiding restricted airspace, and the costs of any expended efforts in tracking the airspace status through available advisory services. Such impacts would depend on civil air traffic densities/peak periods and the individual areas and time frames in which the proposed military flight activities would occur. As discussed in the airspace management analyses, the FAA and Air Force would address any impacts and mitigation measures to be taken before implementation of any airspace proposals.

The economic impacts of any military or other civil aviation aircraft being delayed or diverted to any extent around the proposed airspace when active cannot be quantified due to the many factors to be considered in estimating such impacts. These factors include aircraft type and weight, type and number of engines, an aircraft's phase of flight and altitude at the time of a diversion, air traffic conditions, the additional time/distance incurred by any diversion, etc. Other factors such as maintenance, labor, and aircrew costs would also have to be considered, as applicable, for commercial and general aviation impacts. Economic impacts to general aviation pilots would depend on routes of flight and decisions on whether to delay flight when the airspace is active or avoiding the active airspace. Fuel consumption rates for the different turboprop and jet aircraft types are identified in technical manuals and other documents that provide operators with a general basis for estimating fuel use for flight planning and other purposes. Fuel use alone is not the only factor to be considered in determining the cost of any flight diversion. Aircraft fuel and operating costs would have to be examined in much more depth and in consideration of many other factors for those aircraft types that could be potentially affected by flight diversions around the airspace.

3.4.12.3.2 No Action Alternative

Under the No Action Alternative, the creation of a restricted area over R-2205 in YTA would not be established, and there would be no changes or additional impacts to socioeconomic resources from current existing conditions.

3.4.12.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse but not significant impacts. No mitigations are identified for socioeconomic resources for this proposal. Mitigations for subsistence resources (see Section [3.4.13.4](#)) would provide some benefit for local residents that supplement their household incomes with subsistence harvesting.

3.4.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.4.13.1 Affected Environment

The ROI for the DMPTR restricted area is within the FNSB. As described in Section [3.2.13.1](#) and [Figure 3-23](#), the ROI for this proposed action is within a State-identified nonsubsistence area (ADFG 2011-10). In addition, the Federal Subsistence Management Board has determined that the FNSB does not meet the requirements for a rural area, and thus that the residents of that borough do not qualify for Federal subsistence activities (USFWS 2010-1). As a result, no subsistence activities or resources would be in the ROI for this proposed action. However, as part of ongoing management of Army lands, USAG-FWA does provide opportunities for some subsistence harvesting on YTA and would continue to consult with subsistence parties as described in Section [3.4.13.4](#). Recreational hunting and fishing would still be permitted and managed in the area, as described in Section [3.4.9.4](#), Land Use.

3.4.13.2 Impact Assessment Methodology

The general methodology for evaluating subsistence is described in Section [3.1.13.2](#).

3.4.13.3 Environmental Consequences

3.4.13.3.1 Proposed Action (Preferred Alternative)

Because the land for this proposed action is within a Federal nonrural area and a State nonsubsistence area, subsistence resources are not managed, and Alaska residents are not given priority to harvest resources within the area. Therefore, there would be no impacts on subsistence. Potential impacts on recreational activities are described in Section [3.4.9.4](#).

3.4.13.3.2 No Action Alternative

Under the No Action Alternative, subsistence activities would be the same as described in Section [3.4.13.1](#), Affected Environment.

3.4.13.4 Mitigations

The preceding analysis of effects on subsistence resources has not identified significant adverse impacts. However, as part of ongoing management of Army lands and good stewardship, USAG-FWA would undertake the following measures.

- Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and the outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA.

3.4.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.4.14.1 Affected Environment

The affected environment for the DMPTR proposal includes the FNSB. [Table 3-55](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children. Note that the table characterizes existing population groups in the affected environment at a general level of detail and does not indicate whether the proposal would create an environmental justice effect.

The percent minority in FNSB is 25.9 percent, which is lower than the 35.9 percent average for the State of Alaska. The percent low-income is 8 percent, which is lower than the 9.6 percent average for the State of Alaska. The percent Alaska Native is 7.0 percent, which is less than the 14.8 percent average for the State of Alaska. The percent of children is 25.6 percent, similar to the 26.4 percent average for the State.

3.4.14.2 Impact Assessment Methodology

General methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#).

Table 3-55. Minority Population, Low-Income Population and Children by Area

Digital Multi-Purpose Training Range (DMPTR) Restricted Area					
Area	Total Population	Percent Low Income	Percent Minority	Percent Alaska Native	Percent Children
Fairbanks North Star Borough	97,581	8.0	25.9	7.0	25.6
State of Alaska	710,231	9.6	35.9	14.8	26.4

Note: Except for the low-income data, which are based on the 2005-2009 American Community Survey conducted by the Census, numbers represent 2010 decennial Census data.

Source: USCB 2010-1, 2010-2.

3.4.14.3 Environmental Consequences

3.4.14.3.1 Proposed Action (Preferred Alternative)

The proposed action would align the outer restricted area boundary with the government-controlled YTA lands to provide the expanded protective airspace needed for encompassing YTA hazardous activities, avoiding some land use impacts on non-military lands. Other resources considered for environmental justice analysis (e.g., noise, land use, socioeconomics) would have less than significant impacts with mitigation measures referenced in those resource sections. Impacts from the DMPTR proposal would not create disproportionately high and adverse environmental or health effects on minority or low-income populations or children.

3.4.14.3.2 No Action Alternative

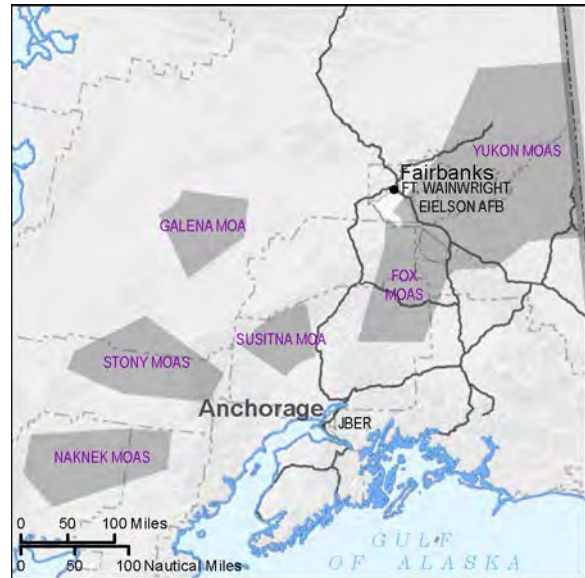
Under the No Action Alternative, there would be no additional disproportionately high and adverse environmental or health effects on minority and low-income populations or children.

3.4.14.4 Mitigations

No mitigations are identified for this resource.

3.5 NIGHT JOINT TRAINING (DEFINITIVE)

The combination of Energy Policy Act of 2005 restrictions and the necessity to conduct night training flights after nautical twilight severely limits the capability of the Air Force to conduct any night MFEs during March and October, including the addition of night ordnance usage during one RED FLAG exercise per year. This proposal would extend operating hours to allow after-dark events for the Air Force during major exercises and routine training. Extended hours would need to be available for both existing and proposed future military training SUA in JPARC. The footprint for the NJT proposal is extensive, consisting of all MOAs in Alaska. (Refer to the gray-shaded area in the map to the right.) Less than 2 percent of this land is military-owned. The proposal does not involve any changes in the structure or dimensions of military airspace, with the exception of the Fox 3 MOA Expansion and New Paxon MOA proposals. The primary source of impact for this proposal is noise from military overflight at night. Based on this, potential for significant impacts on physical, water, cultural, and infrastructure and transportation resources are expected to be low.



Following the impact assessment for each resource, the final mitigations are listed that have been selected by the Army and Air Force to avoid, reduce, or implement management actions for potential significant adverse impacts from implementing the proposed action. These are included to provide the public and other agencies with necessary information on the final mitigations proposed by the Army and Air Force.

3.5.1 Airspace Management and Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.

3.5.1.1 Affected Environment

The following sections describe those airspace uses that may be affected by a proposal to extend the night training beyond the current 10:00 p.m. limitation established by the Alaska MOA EIS ROD.

MILITARY AIRSPACE USE

MOAs/ATCAAs and Restricted Areas

The airspace primarily used for accomplishing aircrew nighttime training requirements includes the Fox and Yukon MOAs/ATCAAs, the Paxon ATCAA, and both R-2202 and R-2205. Other MOAs/ATCAAs may also be used if needed to meet those requirements. The representative annual use of this airspace is noted in the previous airspace proposal discussions and Appendix D, *Airspace Management*. It is estimated that about 20–25 percent of these annual sortie-operations are typically conducted within the current evening hours of darkness. This proportion varies with the different months of the year and available hours of darkness. Currently, routine nighttime training requirements can normally be met during those times of the year when there are sufficient hours of darkness to complete this training by 10:00 p.m. MFEs typically end by 7:00 p.m. and relatively little nighttime training can be accomplished during these exercises due to the limited days/times of year they are conducted.

Other Military Airspace Uses

Other airspace uses in the region described in Section [3.1.1.1](#) would not change significantly with implementation of the extended hours, although there could be minor increases in some MTR use for those aircraft types that may transition from an MTR mission into one of the MOAs being used for joint night training.

CIVIL AVIATION AIRSPACE USE

Civil aviation trends suggest that fewer IFR flights and very few VFR flights generally operate during the later evening hours when the more-limited military nighttime training operations are conducted.

Federal Airways and Jet/RNAV Routes

Current military evening/nighttime training has minimal impacts on those Federal airways and jet/RNAV routes that are within the region where this training normally occurs. The reduced airway/route and military traffic during the evening hours and coordinated scheduling of these nighttime missions with the FAA minimize any potential impacts on air traffic transiting these routes or transitioning to/from Fairbanks International or other airfields in the region.

VFR Air Traffic

VFR air traffic is minimal during those times of the year and periods of darkness when military nighttime training operations are normally conducted; therefore, this training does not currently have any significant impacts on this aviation community.

Public Airports and Chartered Private Airfields

Most evening/nighttime flight activities occur at Fairbanks and Anchorage International, with fewer operations occurring at other public airports and private airfields during those evening hours military night training normally occurs. Therefore, as noted above, the reduced number of airport/airfield and military flight operations during the evening periods minimizes any impacts of this training on airport arriving/departing air traffic.

3.5.1.2 Impact Assessment Methodology

The methodology described in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.1 was used to assess impacts of this proposal on other airspace uses in the affected region.

3.5.1.3 Environmental Consequences

3.5.1.3.1 Alternative A

MILITARY AIRSPACE USE

Proposed MOA and Restricted Area Use

Alternative A would extend the March and October MFE operations from 10:00 p.m. to midnight (12:00 a.m.) local time within the SUA typically used for these evening training missions, as well as the proposed new SUA. Aircraft base recoveries would be completed by 1:00 a.m. With this extension, an NJT MFE such as RED FLAG–Alaska could fly in the MOAs and other JPARC airspace until midnight, with aircraft landing by 1:00 a.m. Of the 60 days annually MFEs can be conducted, it is anticipated that this night training would occur 9 to 10 nights per year. A typical RED FLAG–Alaska includes up to 100 participating aircraft in each of the morning and afternoon sessions. A night training session would

include fewer (50 plus sortie missions). Participating aircraft in all sessions include fighters, tankers, bombers, airlift, etc.

CIVIL AVIATION AIRSPACE USE

The MFE sortie-operations projected for the extended night hours should have minimal effects on civil aviation airspace uses as discussed below.

Federal Airways and Jet/RNAV Routes

This proposal would have minimal impacts on the Federal airways and jet/RNAV routes, considering the relatively fewer military and airway/route traffic that would occur during later hours and current Air Force and FAA procedures for coordinating night training missions and segregating these activities from IFR route air traffic. With such coordination, there should also be minimal impacts on aircraft transitioning between these airways/routes and an airport environment during those later hours.

VFR Air Traffic

The later evening military flights during hours of darkness in which VFR aircraft would not normally operate should have minimal impacts on this aviation sector. Those VFR flights that may occur during those later hours could obtain the active status of the MOAs and restricted areas being activated for those missions to be aware of those activities and plan their flight times/routes accordingly.

Public Airports and Private Airfields

This proposal would have minimal effects on the Fairbanks and Anchorage International airports and any other locations having flight activities during the later night hours. Recovery of the MFE aircraft to Eielson AFB and JBER after 11:00 p.m. would require the FAA to evaluate the manner in which air traffic is managed in the Fairbanks terminal airspace, since it currently reverts to the Anchorage ARTCC from 11:00 p.m. to 6:00 a.m. daily. The FAA aeronautical study of this proposal would examine means of managing this airspace and air traffic operations during those later hour flight missions.

3.5.1.3.2 Alternative B (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed MOA and Restricted Area Use

Alternative B would include both MFE and routine training operations being conducted during the extended night hours, but not normally on the same evenings. Most routine night training requirements are met during those seasonal periods of darkness without the need for the extended hours; however, this alternative would provide that option as needed. Routine training during extended night time hours would be considerably less than the number of MFE operations to be conducted during those later hours. The scheduled use of those affected MOAs and restricted areas in which either MFE or routine NJT would occur would be published through the SUAIS.

CIVIL AVIATION AIRSPACE USE

The relatively small proportion of MFE or routine training sortie-operations that would occur during the extended night hours would have little impact on Federal airways, jet/RNAV routes, VFR air traffic, or public/private airfields, as discussed above for Alternative A.

3.5.1.3.3 No Action Alternative

The No Action Alternative would continue to limit MOA hours to 10:00 p.m. during all months of the year and would not pose any additional impacts on current airspace uses and ATC system capabilities.

3.5.1.4 Mitigations

The preceding analysis of effects on this resource has identified possible minor adverse impacts on Federal airways and public airports. Mitigations related to use of airspace are presented in Section [3.5.8.4](#) (Biological Resources), Section [3.5.10.4](#) (Land Use), and Section [3.5.12.4](#) (Socioeconomics). In addition, the following mitigation is proposed to reduce these impacts on Federal airways and public airports.

- **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.

3.5.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.5.2.1 Affected Environment

The affected environment includes areas beneath all JPARC SUAs. JPARC SUAs are used by a wide variety of aircraft, including aircraft based at installations in Alaska and visiting as part of training exercises. Under baseline conditions, approximately 20 to 25 percent of total annual sortie-operations are conducted at night, but all aircraft depart the MOAs prior to 10:00 p.m. Time-averaged baseline subsonic and supersonic military aircraft noise levels (L_{dnmr}) beneath these SUAs are listed in [Table 3-56](#). Several noise-sensitive areas have been established in areas beneath JPARC SUAs, and pilots avoid these areas during training by specific vertical or horizontal distances. A map showing the location of these areas is presented as Figure B-3 in Appendix B.

The munitions training ranges at DTA and YTA would also be affected by the proposed NJT. Under baseline conditions, Air Force munitions training at these two ranges ceases prior to 10:00 p.m. In order to meet training requirements, the Army sometimes continues training into the late-night period after 10:00 p.m. and before 7:00 a.m. The public in nearby communities is notified of upcoming late-night munitions training. Baseline time-averaged noise levels (CDNL), which take into account current munitions training after 10:00 p.m., are shown in [Figure 3-33](#) and [Figure 3-34](#), for DTA and YTA, respectively. Baseline peak noise levels at the DTA and YTA (PK 15[met]) are shown in [Figure 3-27](#) and [Figure 3-31](#), respectively. The number of rounds of several types of large-arms munitions fired annually in YTA and DTA under baseline conditions are listed in Appendix E, *Noise*, in Table E-9 and Table E-10.

3.5.2.2 Impact Assessment Methodology

The methods used to assess subsonic and supersonic aircraft noise impacts associated with Fox 3 MOA Expansion and New Paxon MOA were also used to assess noise impacts associated with the proposed NJT. Noise models, noise metrics, and a brief description of methods used to interpret results are described in Section [3.1.2.2](#). For this analysis, noise impacts would be considered to be significant if airspace noise levels were to exceed 65 dB L_{dnmr} or 62 dB CDNL and increase by greater than 1.5 dB. Noise impacts would also be considered potentially significant if substantial increases in noise level (i.e., greater than 10 dB) were to occur in areas that are currently relatively quiet.

Munitions noise impacts were assessed using the same methods used to assess such noise under the RLOD proposal (see Section [3.2.2.2](#)). Noise impacts would be considered significant if noise levels exceeding 130 dB PK 15(met) or 62 dB CDNL were to impact areas not owned by the DoD and that were not already affected by these noise levels under baseline conditions.

3.5.2.3 Environmental Consequences

3.5.2.3.1 Alternative A

Under Alternative A, MFE operations would be permitted after 10:00 p.m. to midnight local time during the months of March and October. It is estimated that less than 3 percent of total sortie-operations during these two months would occur after 10:00 p.m. As described in [Table 2-14](#), several types of munitions would be used during this late-night time period as well. Since the DNL metric includes a “penalty” of 10 dB for all events that occur between 10:00 p.m. and 7:00 a.m., this shift in the time of aircraft sortie-operations and munitions usage would result in an increase in DNL in affected areas. The shift in time of sortie-operations to after 10:00 p.m. would result in an increase of approximately 1 dB L_{dnmr} in all JPARC training airspace (see [Table 3-56](#)). Supersonic noise levels (CDNL) would also increase by about 1 dB beneath those airspace units that allow supersonic training. Noise levels experienced on the ground would be exactly the same as noise levels experienced currently, but noise events would occur at later times. The occurrence of operations during the late-night period between 10:00 p.m. and 7:00 a.m. would be expected to result in an increased likelihood of annoyance among affected persons. However, noise impacts would not exceed the significance thresholds established for this action.

As shown in [Figure 3-33](#) and [Figure 3-34](#), time-averaged munitions noise levels at DTA and YTA would increase slightly under NJT, but noise levels exceeding 62 dB CDNL would not extend beyond range boundaries. Increase would not be the result of additional munitions being fired, as the number of rounds fired per year would be expected to stay the same as under baseline conditions. Rather, the increase in CDNL would occur because of an increase in noise events after 10:00 p.m. and before 7:00 a.m. As described in Appendix B, *Definition of the Resources and Regulatory Settings*, the DNL noise metric applies a penalty to noise events occurring during the late-night time period.

Munitions would be delivered after 10:00 p.m. during one RED FLAG exercise per year, which would typically last for 9 to 10 nights. As described in [Table 2-15](#), munitions used during RED FLAG exercises include bombs such as the Mk-82 (500 pound) and smaller weapons such as the 30-mm cannon. Most of the bombs dropped would be inert and would generate little or no noise during delivery. An estimated 12 live Mk-82 bombs, four live Mk-84 bombs, 1,000 rounds of 30-mm ammunition, and 1,000 rounds of 20-mm ammunition would be delivered annually after 10:00 p.m. and before 7:00 a.m. under NJT Alternative A. Approximately half of the munitions would be delivered at DTA and half at YTA.

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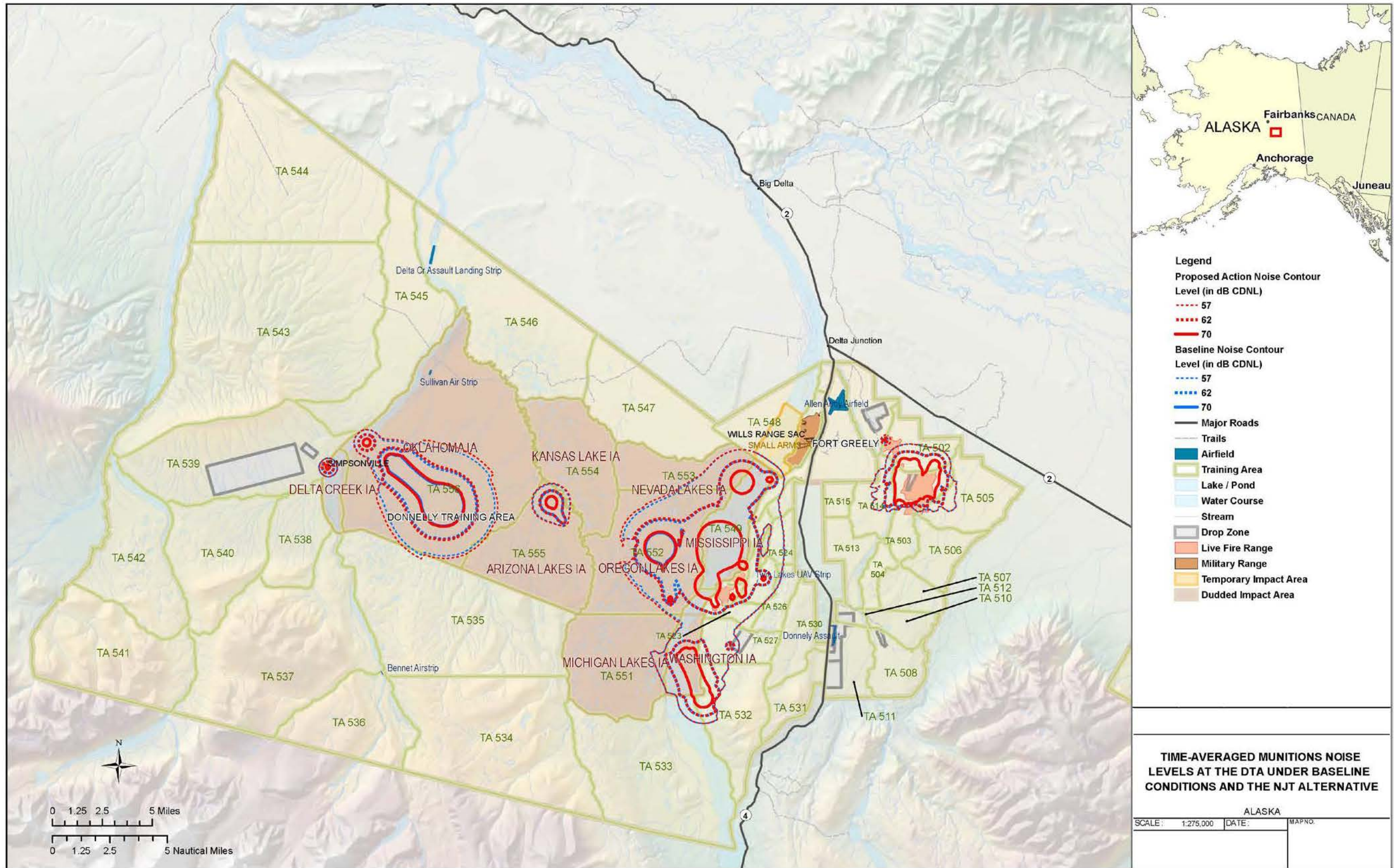


Figure 3-33. Time-averaged Munitions Noise Levels at the DTA Under Baseline Conditions and the NJT Alternative

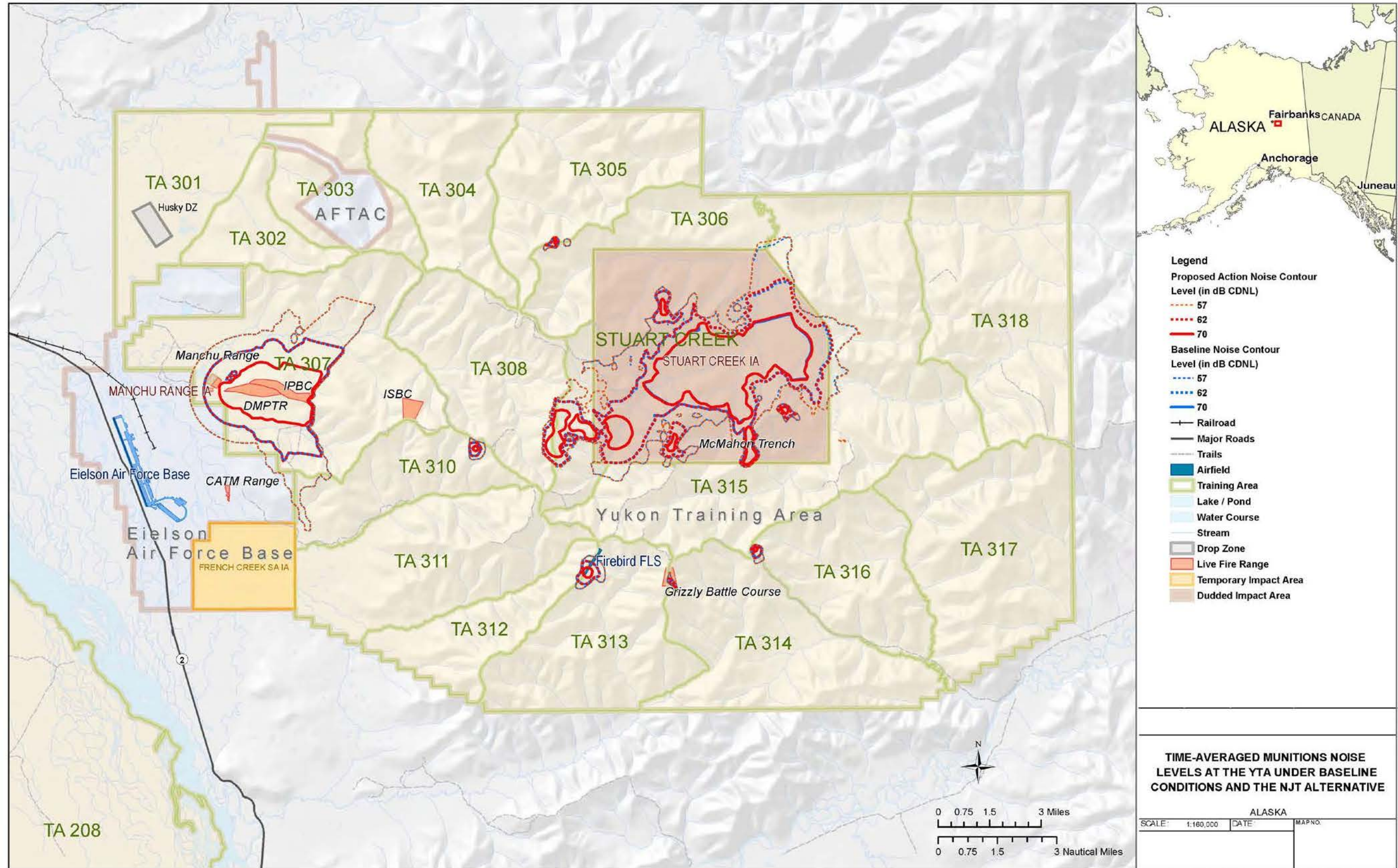


Figure 3-34. Time-averaged Munitions Noise Levels at the YTA Under Baseline Conditions and the NJT Alternative

**Table 3-56. Noise Levels Beneath JPARC Airspace Areas Under
Baseline Conditions and the Night Joint Training Action Alternative**

Airspace Unit	Baseline			Proposed		
	Ldnmr	CDNL	Booms Per Day	Ldnmr	CDNL	Booms Per Day
Birch MOA ¹	61	N/A	N/A	62	N/A	N/A
Buffalo ¹	55	N/A	N/A	56	N/A	N/A
Delta MOA/ATCAA ²	40	39	<0.1	41	40	<0.1
Eielson MOA/ATCAA ¹	59	N/A	N/A	60	N/A	N/A
Fox 1 MOA/ATCAA ³	44	56	1.7	45	57	1.7
Fox 2 MOA/ATCAA ³	52	56	1.7	53	57	1.7
Fox 3 MOA/ATCAA ³	39	61	4.6	40	62	4.6
Paxon ATCAA ²	37	61	4.6	37	62	4.6
Viper A/B MOA/ATCAA ¹	47	N/A	N/A	48	N/A	N/A
Yukon 1 MOA/ATCAA ³	50	53	0.7	51	54	0.7
Yukon 2 MOA/ATCAA ⁴	49	52	0.6	50	53	0.6
Yukon 3 High/3A Low MOA/ATCAA ⁵	56	52	0.6	57	53	0.6
Yukon 3B MOA/ATCAA ⁵	44	51	0.5	45	52	0.5
Yukon 4 MOA/ATCAA ⁵	47	52	0.6	48	53	0.6
Yukon 5 MOA/ATCAA ⁵	<35	51	0.5	<35	52	0.5
R-2202 ⁵	55	53	0.8	56	54	0.8
R-2205 ¹	60	N/A	N/A	61	N/A	N/A
R-2211 ¹	66	N/A	N/A	67	N/A	N/A

¹ Supersonic not permitted.

² Supersonic permitted above 30,000 feet MSL.

³ Supersonic permitted above 12,000 feet MSL or 5,000 feet AGL (whichever is higher); no supersonic west of 146° 00' 08" west or north of R-2205.

⁴ Supersonic permitted above 12,000 feet MSL or 5,000 feet AGL (whichever is higher); no supersonic west of 146° 00' 08" west.

⁵ Supersonic permitted above 12,000 feet MSL or 5,000 feet AGL (whichever is higher).

Key: ATCAA= Air Traffic Control Assigned Airspace; CDNL=C-weighted day-night average level; L_{dnmr}= onset-rate adjusted day-night average sound level; MOA=Military Operations Area; N/A=not applicable.

Proposed late-night firing during the 2-week RED FLAG exercise could result in an increased likelihood of annoyance for persons living near the range boundary. However, the targets to which munitions are delivered as part of RED FLAG operations are located several miles from the nearest boundary of DoD-owned land and munitions noise attenuates to below 130 dB PK 15(met) prior to reaching the range boundary (see [Figure 3-27](#) and [Figure 3-31](#)). As mentioned previously, the number and types of munitions would not change as result of NJT, and peak munitions noise levels would not change. Late-night munitions delivery would occur on ranges at which late-night munitions training already takes place. Noise impacts would not exceed significance thresholds established for this action.

3.5.2.3.2 Alternative B (Preferred Alternative)

Under Alternative B, JPARC MOA operating hours would be extended from 10:00 p.m. to midnight local for all months of the year, and would allow both MFE and routine training operations. No single night should have more bombing events after 10:00 p.m. than was calculated for Alternative A; however, since bombs could be dropped during routine training after 10:00 p.m., there may be more nights per month with some bombing events, primarily during the months of October and March. As mentioned previously, the number and types of munitions would not change as result of NJT, and peak munitions noise levels would not change. Late-night munitions delivery would occur on ranges at which late-night

munitions training already takes place. Noise impacts would not exceed significance thresholds established for this action.

3.5.2.3.3 No Action Alternative

Under the No Action Alternative, operations in the MOAs would continue to cease prior to 10:00 p.m. No additional noise impacts would occur under the No Action Alternative.

3.5.2.4 Mitigations

Users of JPARC airspace would continue to follow all existing mitigation procedures. No new mitigations are identified for this resource.

3.5.3 Safety

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.3.

3.5.3.1 Affected Environment

FLIGHT SAFETY

Those flight safety conditions and risks discussed in Sections [3.1.1](#) and [3.1.3](#) provide a general basis for all daytime and nighttime flight operations in the existing JPARC airspace. The number of operations currently conducted during hours of night flying is considerably fewer (by one-fourth) than those conducted during daytime hours which may, to a limited extent, reduce the level of flight safety risks. The risks of using airspace and operations associated with nighttime training (after dark) in the region is part of current conditions and airspace management. Procedures and processes are in place for preventing potential aircraft near misses and mishaps, including midair collisions, and avoiding areas where BASH risks are of most concern.

GROUND SAFETY

This alternative does not include activities that would pose ground safety hazards, such as air-to-ground or live-fire ordnance training. Consequently, impacts on ground safety are not expected.

3.5.3.2 Impact Assessment Methodology

FLIGHT SAFETY

The impact assessment methodology discussed in Section [3.1.3.2](#) was used, as appropriate, to address the potential impacts of this proposal.

3.5.3.3 Environmental Consequences

3.5.3.3.1 Alternative A

FLIGHT SAFETY

This proposal would present very little added risk to flight safety while conducting the later night training operations. The reduced level of military operations and civil air traffic during those later hours would reduce the potential for interactions between military and civil aircraft, thus minimizing the risk of any near-misses or midair collisions. The potential for any bird/wildlife aircraft strikes during those later evening hours would always be a possibility, therefore those measures currently in place for monitoring, reporting, and avoiding these hazards would continue to be followed for these night operations.

3.5.3.3.2 Alternative B (Preferred Alternative)

FLIGHT SAFETY

This proposal would also present very little added risk to flight safety for the reasons discussed for Alternative A.

3.5.3.3.3 No Action Alternative

The No Action Alternative would maintain nighttime flight operations within the timeframes and flight safety conditions that currently exist with those operations.

3.5.3.4 Mitigations

The preceding analysis does not identify potential for significant impacts for safety regarding night training. However, if JPARC proposals for the Fox 3 and new Paxon MOA are implemented, the following mitigation would apply and provide benefits for flight safety.

- **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.

3.5.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.5.4.1 Affected Environment

The proposed NJT action would shift the times at which nighttime sorties are conducted and would not result in an increase in flight activity or a change in the location of these sorties. Flights will be spaced out over a longer period during the night, resulting in additional dispersion of the aircraft emissions over the region. No air quality impact analysis was conducted for this proposed action, as there would not be an overall change in the aircraft training emissions or to air quality in the affected region from current baseline conditions due to this action.

3.5.4.2 Impact Assessment Methodology

This section is not applicable, per Section [3.5.4.1](#).

3.5.4.3 Environmental Consequences

For each of the proposed action alternatives, the proposed NJT action would shift the times at which nighttime sorties are conducted and would not result in an increase in flight activities or a change in the

location of these sorties. Since flights would be spaced out over a longer period of time during the night, it will result in additional dispersion of the aircraft emissions over the region and lower localized impacts.

An air quality analysis of the impacts from Alternatives A and B was not conducted for this proposed action, as there would not be an overall change in the aircraft training emissions or to air quality in the affected region from current baseline conditions due to this action.

3.5.4.3.1 Alternative A

See Section [3.5.4.3](#).

3.5.4.3.2 Alternative B (Preferred Alternative)

See Section [3.5.4.3](#).

3.5.4.3.3 No Action Alternative

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations. Therefore, the No Action Alternative would not result in any additional air quality impacts.

3.5.4.4 Mitigations

Since there are no air quality impacts from this action, no actions to reduce air quality impacts are being proposed.

3.5.5 Physical Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5. The proposed action includes changes in air operations to nighttime hours in regional SUA and expending some portion of munitions during RED FLAG–Alaska exercises at Oklahoma and Stuart Creek Impact Areas at night (rather than during the daytime). Neither of these actions involves any change to conditions affecting physical resources; therefore, no further analysis is provided.

3.5.6 Water Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6. The proposed action includes changes in air operations to nighttime hours in regional SUA, and expending some portion of munitions during RED FLAG–Alaska exercises at Oklahoma and Stuart Creek Impact Areas at night (rather than during the daytime). Neither of these actions involves any change to conditions affecting physical resources; therefore, no further analysis is provided.

3.5.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.5.7.1 Affected Environment

The proposed NJT action would shift the times at which nighttime sorties are conducted and would not result in an increase in flight activity or a change in the location of these sorties. Although there would be no overall change in aircraft chaff and flares use, live and inert night ordnance use would occur during a two week period each year as a part of this action.

CONTAMINATED SITES

Contaminated sites are not applicable to this proposed action, as no ground activities would occur.

MUNITIONS-RELATED RESIDUE

The expenditure of live ammunition or detonations has the potential to release hazardous chemicals or other elements, such as heavy metals, into the environment. The proposed training and exercises would use existing impact areas within R-2205 in YTA and R-2202 in DTA-West. Munitions related baseline information is provided in Sections [3.4.7.1](#) and [3.2.7.1](#) for those areas, respectively.

3.5.7.2 Impact Assessment Methodology

Impact methodology would be the same as that described for Sections [3.1.7.2](#) and [3.2.7.2](#).

3.5.7.3 Environmental Consequences

3.5.7.3.1 Alternative A

GENERAL HAZARDOUS MATERIALS AND WASTE

General hazardous materials and waste are not applicable to this proposed action, as no ground activities would occur.

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

There is the potential for munitions related hazardous materials impacts in association with this alternative. Munitions fragments and residues would be generated as a result of live-fire action. However, training would use existing impact areas for the discharge of ordnance from aircraft within the proposed restricted area, such that no adverse munitions-related chemical release impacts on the environment would occur. These impact areas would be managed in accordance with current Federal, State of Alaska, Air Force, and Army regulations for the management, safe handling, and disposal of hazardous waste and materials associated with live and inert ordnance and UXO, as the result of training exercises within R-2205 in YTA and R-2202 in DTA-West.

3.5.7.3.2 Alternative B (Preferred Alternative)

Impacts would be the same as those described for Alternative A.

3.5.7.3.3 No Action Alternative

JPARC MOA hours would not be extended past 10:00 p.m.; therefore, impacts would be similar to, but less, than those described for Alternative A.

3.5.7.4 Mitigations

No mitigations are identified for this resource.

3.5.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.5.8.1 Affected Environment

No ground effects are associated with the NJT proposed action; therefore, as no impacts on vegetation would occur, vegetation analyses will not be included in this section. Operations would occur in currently used JPARC MOAs between the Yukon 5 MOA on the north and Fox 3 MOA on the south. Primary biological issues may include new noise disturbances from training aircraft after dark affecting resident and migratory wildlife species.

Important known wildlife habitats that are present under the proposed NJT MOAs are presented in [Table 3-57](#).

Approximately 2 million waterfowl migrate through TFTA and the Chena floodplain north of YTA each spring, followed by 5 million birds in the fall, peaking in May and September (USARAK 2004-1). An estimated 12,000 raptors also migrate through the area in spring (April–May) and fall (August–early October). More details on wildlife and/or wildlife habitat present in the Fox MOAs are available in Section [3.1.8](#); wildlife in TFTA, in Sections [3.8.8](#) and [3.7.8](#); and wildlife in YTA, in Sections [3.8.8](#) and [3.9.8](#).

Table 3-57. Wildlife Habitats Associated with the Night Joint Training Project

Project Area	Moose Winter Habitat	Moose Rutting Habitat	Moose Calving Habitat	Caribou Winter Habitat	Caribou Calving Habitat	Dall Sheep Winter Habitat	Waterfowl General Habitat	General Trumpeter Swan Habitat
	Acres (hectares)							
Yukon (all MOAs)	3,714,015 (1,503,009)	2,283,978 (924,294)	2,296,091 (929,196)	12,634,813 (5,113,128)	4,453,973 (1,802,459)	0	3,526,330 (1,427,055)	0
Eielson MOA	608,295 (246,168)	608,295 (246,168)	14,477 (5,859)	628,631 (254,398)	87,008 (35,211)	0	62,848 (25,434)	0
Birch MOA	42,908 (17,364)	42,908 (17,364)	15,271 (6,180)	154,710 (62,609)	1,283 (519)	0	124,003 (50,183)	0
Buffalo MOA	463,983 (187,768)	133,040 (53,839)	70,518 (28,538)	438,300 (177,374)	16,649 (6,738)	0	430,086 (174,049)	0
Fox MOAs	1,416,917 (573,406)	869,427 (351,845)	790,031 (319,714)	1,749,745 (708,097)	505,721 (204,658)	3,420 (1,384)	966,499 (391,128)	656,651 (265,737)
Viper MOAs	88,816 (35,942)	88,816 (35,942)	88,816 (35,942)	0	0	0	116,191 (47,021)	0
Delta MOAs	738,197 (298,738)	492,023 (199,115)	466,588 (188,821)	734,787 (297,358)	1,283 (519)	0	1,037,002 (419,660)	0

Key: MOA=Military Operations Area.

Source: RDI 2005-1, 2005-2, 2005-3, 2005-4, 2005-5.

3.5.8.2 Impact Assessment Methodology

The general methodology for evaluating biological resources is described in Section [3.1.8.2](#).

3.5.8.3 Environmental Consequences

Because no infrastructure is needed, no ground effects are associated with the NJT proposed action; therefore, no impacts on vegetation would occur.

Important known wildlife habitats that are present under the proposed NJT MOAs were presented in [Table 3-57](#). Where mapping information was available, those known wildlife habitats that may be sensitive to disturbances from the addition of nighttime low level aircraft noise and overflight have been identified and include caribou and moose calving areas, Dall sheep lambing areas, trumpeter swan and other waterfowl nesting habitat, and all waterfowl migration/stopover areas.

3.5.8.3.1 Alternative A

Under Alternative A, the JPARC flight operating hours would be extended to allow MFE tactical operations until midnight and landing by 1:00 a.m., local time, during March and October. Alternative A would allow extended nighttime operating hours only during March and October, with the number of evening sorties remaining the same and occurring during MFEs as is the current night flight training program. This would allow night training during March and October for a minimum of 1.5 hours to a maximum of 2.5 hours for each exercise. Such exercise sessions would occur up to 10 nights per year with the number of aircraft sorties participating in each session (50 or more) being somewhat less than each daytime session (50 to 70). Both existing and proposed future SUA would be used to accommodate night training while continuing to ensure noise-sensitive areas are avoided during those later-hour operations. Use of live and inert air-to-ground ordnance (bombs and use of 20- or 30-mm cannon) would be confined to Oklahoma Impact Area (DTA) and Stuart Creek Impact Area (YTA), which are existing impact areas where live ordnance is used and where night bombing is currently conducted. The ordnance use exercises would take place between 10:00 p.m. and 7:00 a.m. local time.

Under Alternative A in which the extended flight operations are proposed for March and October, actions would not be expected to coincide with the peak times of waterfowl migration (May and September) but would overlap more than do current operations. The greatest effect on waterfowl may be the increase in aircraft overflight at night roosting areas. Most raptors are daytime flyers and their peak migration periods (April–May and August to early October) would overlap slightly with extended flight operations, which would occur when the raptors would be roosting. However, with current avoidance restrictions in place and the addition of mitigation measures, disturbance incidents are expected to be minimal (see below and Sections [3.5.3.1](#) and [3.5.3.3.1](#), Safety).

In addition, bird-aircraft strike incidences have the potential to increase. Given the potential for loss or injury to aircrews and aircraft as a result of a bird-aircraft strike, extensive efforts are made by the Military to avoid bird-aircraft strikes (as described below and in Safety). Regarding wildlife impacts, the potential effects of unavoidable bird-aircraft collisions on populations of waterfowl or other wildlife would be negligible and would not be measurable.

Other potential wildlife concerns focus on terrestrial big game. Bears would not be emerging from hibernation until April and would begin hibernation by October; therefore, they should not be exposed to additional night flying and the possibility of being startled from flight activities. Animal responses to low-level flights have been characterized in recent studies (reviewed in Section [3.1.8.3](#)) as minor. Studies have included ungulates such as caribou and Dall sheep during calving/lambing seasons and in winter (see discussion of potential overflight effects on wildlife under Fox 3/Paxon MOAs, Section [3.1.8.3](#)).

Caribou and moose are in rut by October. It is likely that the extension of flight hours would not be noticeable to animals already accustomed to military training in the area with some level of military overflight after dark. In the interior of Alaska, caribou calves and Dall sheep lambs are typically born in mid to late May, well after the proposed extended flight hours for March under Alternative A. Therefore, Alternative A does not propose new threats to sensitive big game activities and would be expected to have little to no adverse effects to these species.

Overall impacts to biological resources from Alternative A are expected to be adverse but not significant, and would be further reduced given implementation of mitigation and impact avoidance measures summarized below.

3.5.8.3.2 Alternative B (Preferred Alternative)

Alternative B would extend flight operations, in all months and for all military users, until midnight with landing by 1:00 a.m. local time. Implementation of NJT under Alternative B has the potential for nighttime flying to coincide with the peak times of waterfowl migration. Most waterfowl migrations occur at night, intensifying shortly after sunset, peaking in the middle of the night, and declining thereafter (Humburg 2011). Therefore, Alternative B may present a somewhat higher potential for increased bird-aircraft strikes, this adverse impact would require more intensive planning among the BASH Team, pilots, and route planners to maintain safety. A review of research and experiments were inconclusive as to whether the routes of nocturnally migrating birds were affected when exposed to loud noises (Larkin et al. 1996). The review pointed out that loud, repetitive, acoustic stimuli used to scare birds from farms, orchards and runways, usually tend to rapidly lose their effect as birds habituate to them. In this way, if the night training follows a predictable pattern, it may have diminishing adverse effects to birds flying or roosting in the area of takeoffs and landings where the loudest noises would occur. The requirement to reduce adverse effects to roosting migratory and resident birds present under project area MOAs will be accomplished by continuing seasonal overflight restrictions in place for known large rivers, migration stopover habitats, and known raptor nests.

Many big game mammals are more active at dawn, dusk and at night and aircraft-ungulate strikes have been noted at many airports. Wright et al. (1998) found that the ungulate strike rates (number/hour) across 44 states were four to nine times greater at dusk than at night or dawn. Air Force safety protocols take this into account. Aircraft-wildlife strikes are a safety concern for the military but would not have a measurable effect on any wildlife populations. Published studies of effects of noise and other disturbance have largely concentrated on diurnal rather than nocturnal wildlife when animals can be more easily observed visually (Larkin et al. 1996). However, much military training activity takes place at night, most mammals are nocturnally active, and animals may rely more on or attend more to auditory cues at night than in daytime. The overflight restrictions in place over known sensitive areas, including large ungulate parturition areas, are expected to continue to provide the protection from potential disturbance required to reduce adverse effects to wildlife present under project area MOAs.

Overall impacts to biological resources from Alternative B are expected to be adverse but not significant, and would be further reduced given implementation of mitigation and impact avoidance measures summarized below.

3.5.8.3.3 No Action Alternative

Under the No Action Alternative, JPARC MOA hours would not be extended past 10:00 p.m.; therefore, wildlife resources would be expected to remain as under existing baseline conditions.

3.5.8.4 Mitigations

The preceding analysis has identified possible adverse but not significant impacts to biological resources. The following proposed mitigation would reduce impacts to birds along wild and scenic river corridors.

- **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxson MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxson low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxson Fish Hatchery from the higher flying military aircraft.
- **National Wild and Scenic Rivers Protection.** For the period of May 15 to September 30, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-NM buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake).

3.5.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.5.9.1 Affected Environment

Archaeological and historic architectural resources under airspace, which are unlikely to be affected by aircraft overflights (see Section [3.1.9.2](#)), were characterized using the records of the National Register and National Historic Landmarks. Archaeological sites under training airspace include Native burial grounds, village and settlement sites, and historic mining sites (Air Force 2006-1). Architectural resources under the proposed MOAs include structures relating to gold mining, trapping, or the railroad (Air Force 2006-1). In addition to National Register-listed sites, there are likely to be additional cultural resources that are either eligible or potentially eligible for National Register listing under airspace. Locations of Federally recognized Alaska Native tribes under or near the airspace discussed below are illustrated in [Figure 3-10](#).

GALENA MOA

There are no National Register-listed cultural sites under the Galena MOA (NRIS 2011). However, connecting trails of the Iditarod National Historic Trail are under the MOA. The Iditarod Trail is a network of more than 2,300 trails that takes its name from an Athabascan Indian village. Trails used by the Ingalik and Tanaina Indians and Russian fur traders were improved by miners in the early 1900s. The trails were heavily used by miners until 1924 when airplanes came into use (BLM 2012). In 1925, dog teams and drivers gained national attention when they delivered diphtheria serum from Nenana to Nome in 127 hours along the trail. The annual Iditarod race retraces the route.

STONY A/B MOA

The Stony A and B MOAs lie above the Kolicachuk, Upper Kuskokwim, and Deg Hit'An language regions (ANKN 2011). There is one National Register-listed resource under the Stony A and B MOAs

(see Appendix H, *Cultural Resources*). The Kolmakov Redoubt Site is in the Sleetmute area under Stony B (NRIS 2011).

Federally recognized Alaska Native tribes under or near the airspace include the Native Village of Crooked Creek, the Native Village of Georgetown, Lime Village, the Village of Red Devil, the Village of Sleetmute, and the Village of Stony River (BIA 2010).

Crooked Creek was reported by a Russian explorer in 1844 as “Kvikchapak” in Yup’ik and “KhottyIno” in Ingalik (ADCCED 2011). At that time the site was used as a summer fish camp for the Kwigiumpainukamuit villagers. A permanent settlement was established there in 1909 as a way-station for the Flat and Iditarod gold camps. A trading post was founded in the upper village (upriver from the creek mouth) in 1914, and a post office and school were built in the late 1920s. The lower village was settled by Eskimo and Ingalik people. Native lifestyle is based on subsistence activities involving the harvest of salmon, moose, caribou, and waterfowl (ADCCED 2011). Both parts of the village remain today.

Georgetown is on the north bank of the upper Kuskokwim River in the Kilbuck-Kuskokwim Mountains. Europeans first entered the middle Kuskokwim area in 1844 when the Russian explorer Zagoskin sailed upriver to McGrath. At that time, Georgetown was a summer fish camp for residents of Kwigiumpainukamuit and was known as Keledzhichagat (ADCCED 2011). Gold was found along the George River in 1909, and the mining settlement of Georgetown was named for three traders: George Hoffman, George Fredericks, and George Morgan.

The town grew to about 200 cabins and several stores. By 1953, only one large structure from the mining era remained: a two-story cabin that belonged to George Fredericks. The present settlement developed in the 1950s. A state school was established in 1965 and remained until 1970. Georgetown is presently used as a seasonal fishing camp. It has no year-round residents (ADCCED 2011).

Lime Village is on the south bank of the Stony River south of McGrath. It is a Dena’ina Athabascan Alaska Native settlement that acquired European settlers by in 1907. Residents of nearby Lake Clark used the location as a summer fishing camp (ADCCED 2011). The 1939 U.S. census called the settlement Hungry Village. Saints Constantine and Helen, a Russian Orthodox chapel, was built there in 1960, and a state school was constructed in 1974 (ADCCED 2011). Presently, subsistence is based on hunting and gathering, with some seasonal work in firefighting and trapping.

Red Devil is located on both banks of the Kuskokwim River at the mouth of Red Devil Creek. The village was named after the Red Devil mercury mine established in 1921. The mine continued to operate until 1971 (ADCCED 2011). The village is a mix of Eskimo, Athabascan, and nonnative inhabitants who supplement their income with subsistence activities.

Sleetmute is on the east bank of the Kuskokwim River. It is an Ingalik Alaska Native village that has also been known as Sikkiut, Steelmute, and Steitmute (ADCCED 2011). A Russian trading post was built at the nearby Holitna River junction 1.5 miles away, but was moved farther downriver in 1841. Another trading post was started at Sleetmute in 1906. A school and post office opened in the 1920s, and a Russian Orthodox church was built in 1931 (ADCCED 2011).

Stony River, also known as Moose Village and Moose Creek, is on the north bank of the Kuskokwim River near its junction with the Stony River. It began as a trading post and riverboat landing supplying mining operations to the north (ADCCED 2011). The first trading post and post office were opened during the 1930s, and area natives established residency there in the 1960s. The village is a mix of Athabascan and Eskimo people who depend heavily on a subsistence economy.

SUSITNA MOA

No National Register–listed cultural resources are under this MOA (NRIS 2011). No Federally recognized Alaska Native tribes are under Susitna airspace (BIA 2010).

NAKNEK 1/2 MOAS

There are no National Register–listed resources under the Naknek MOAs (NRIS 2011). One Federally recognized Alaska Native tribe, Koliganek, lies under the edge of Naknek 1 airspace (BIA 2010).

Koliganek is on the Nushagak River north of Dillingham. First contact with Europeans occurred in the early 19th century when Russian fur traders entered the area. Before being moved to its present location, the village was on Tikchik Lake near the headwaters of the Nuyakuk River (Koliganek 2005). After a flu epidemic, residents moved to the confluence of the Nuyakuk and Nushagak Rivers (Old Koliganek). A Russian Orthodox church, Saint Yako, was established in the village in 1870. The residents moved to another site in 1938 (Middle Koliganek) because of a decreasing supply of firewood near the village. The present site was established in 1964. Residents depend on the Bristol Bay commercial salmon fishery and fur trapping. The Koliganek Traditional Council is the governing body for the Native residents of Koliganek (Koliganek 2005).

FOX MOAS

Although there are no Federally recognized Alaska Native tribes within this area, there are scattered remote residences and BLM-managed recreation areas. The area is frequently used for subsistence and recreational hunting (BLM 2006). Additionally, the National Register–listed Tangle Lakes Archaeological district is located on lands underlying the Fox MOAs. The district contains more than 400 recorded archaeological sites spanning 10,000 years of human presence in the region (BLM 2006) (see Appendix H, *Cultural Resources*).

BIRCH, BUFFALO, EIELSON, AND VIPER MOAS

No Federally recognized Alaska Native tribes are under these MOAs. Rapids Roadhouse, also known as Black Rapids Roadhouse, in the Delta vicinity, underlies Buffalo MOA and is the only National Register–listed cultural resource under these MOAs (NRIS 2011) (see Appendix H, *Cultural Resources*).

DELTA MOA

There are three National Register–listed properties under the Delta MOA, all of which are architectural resources. They are the Big Delta Historic District (also known as Big Delta State Historical Park), Delta Junction; Rika’s Landing Roadhouse (also known as Rika’s Landing Site), Big Delta; and Sullivan Roadhouse, Delta Junction (NRIS 2011) (see Appendix H, *Cultural Resources*).

YUKON MOAS

The Yukon MOAs overlie a large area to the north and east of Fairbanks. Several Alaska Native tribes occur in this area, as well as 11 National Register–listed resources (NRIS 2011) (see Appendix H, *Cultural Resources*).

The small village of Healy Lake, home to the Federally recognized Alaska Native tribe of Healy Lake Village, is under the Yukon 1 MOA, 29 miles east of Delta Junction. Predominant activity in the area is the recreational use of Healy Lake during summer months.

The village of Circle, home to the Federally recognized Alaska Native tribe of Circle Native Community which underlies the Yukon 2 MOA, is on the south bank of the Yukon River at the edge of the Yukon Flats National Wildlife Refuge about 160 miles northeast of Fairbanks. The Federally recognized Circle

Native Community is predominantly Athabascan. Circle, or Circle City, was established in 1893 as a supply point for goods shipped up the Yukon River and then to the gold mining camps. By 1896, Circle was the largest mining town on the Yukon, with a population of 700. Residents, some of whom are part-time, now number approximately 100. The Coal Creek Historic Mining District is among the 11 properties listed on the National Register.

Native Village of Eagle, a Federally recognized Alaska Native tribe, underlies the Yukon 3 MOA, and is 6 miles west of the Alaska-Canada border. It is located on the Taylor Highway on the left bank of the Yukon River at the mouth of Mission Creek. The area has been the historical home to Han Kutchin Indians, and was once known by non-Alaska Natives as “Johnny’s,” after a leader named John. The adjacent community of Eagle saw its beginnings around 1874 as a log house trading station. Named “Belle Isle,” the station continued to provide supplies and trade goods for prospectors who worked the upper Yukon and its tributaries until Eagle City was founded at the site in 1897. Fort Egbert was established adjacent to Eagle in 1899; a major accomplishment was construction of part of the Washington-Alaska Military Cable and Telegraph System in 1903. Eagle was incorporated in 1901, becoming the first incorporated city in the Interior. Several National Register properties occur in or near Eagle, including the Eagle Historic District, Woodchopper Roadhouse, Frank Slaven Roadhouse, Steele Creek Roadhouse, George McGregor Cabin, and Ed Beiderman Fish Camp (NRIS 2010). Eagle is listed in the National Register as the location of the Chicken Historic District, but it is 66 miles south of Eagle on the Taylor Highway.

The Chalkyitsik Village, a Federally recognized Alaska Native tribe, underlies the Yukon 5 MOA. Archaeological excavations indicate this region may have been first used as early as 12,000 years ago. This village on the Black River has traditionally been an important seasonal fishing site for the Gwich’in. Village elders remember a highly nomadic way of life: the people lived at the headwaters of the Black River from autumn into spring, and fished downriver in the summer. Contact with early explorers was limited, and the Black River Gwich’in receive scant mention in early records. The location of the village at its present site is due in part to low water in the Black River in the 1930s. A boat carrying materials intended for a school to be built in Salmon Village had to be unloaded at the Chalkyitsik seasonal fishing camp that then consisted of four cabins. Rather than reload the construction materials, the school was built at Chalkyitsik, and the Black River people began to settle around the school.

Although no traditional cultural resources have been specifically identified underneath the airspace, this does not mean that none are present. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed NJT ROI (see Section [1.6.5](#)).

3.5.9.2 Impact Assessment Methodology

The methodology used for the analysis of potential impacts on cultural resources for the proposed NJT action is the same as the methodology applied to the analysis of the Fox 3 MOA Expansion/Paxon MOA action (Section [3.1.9.2](#)).

3.5.9.3 Environmental Consequences

3.5.9.3.1 Alternative A

Alternative A proposes to extend the JPARC flight operating hours to allow tactical operations until midnight and landing by 1:00 a.m., local time, during March and October. The number of nighttime sorties is expected to remain the same and occur during MFEs, as is the current night flight training

program, but would be divided between the months of March and October. The proposal also includes night use of ordnance during one RED FLAG exercise in a given year at JPARC.

No impacts are anticipated to cultural resources from the proposed change in airspace operating hours and its training use. As described in Section [3.5.2](#), time-averaged noise levels greater than 62 CDNL would remain well within range boundaries, and would occur at later times. In compliance with Section 106 of the NHPA, ALCOM, on behalf of the Air Force, has completed all compliance requirements for consultation with the Alaska SHPO and determined that no historic properties will be affected by implementation of the proposed action. All compliance requirements for consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities regarding ALCOM's finding of no historic properties affected has been completed. In accordance with AFI 32-7065 (Air Force 2004-3), all NHPA Section 106 consultation has been completed.

No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed change in airspace operating hours. In compliance with the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM, on behalf of the Air Force, has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed change in airspace operating hours.

3.5.9.3.2 Alternative B (Preferred Alternative)

Alternative B proposes to extend the JPARC flight operating hours to allow tactical operations until midnight and landing by 1:00 a.m., local time, during all months of the year. As with Alternative A, the number of nighttime sorties would remain the same and occur during MFEs, as is the current night flight training program.

Under Alternative B, impacts would be similar to Alternative A, with no significant impacts anticipated to cultural resources from the proposed change in airspace operating hours and its training use.

No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed change in airspace operating hours. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed change in airspace operating hours (see Section [1.6.5](#)).

3.5.9.3.3 No Action Alternative

Under the No Action Alternative there would be no change in operating hours in JPARC. Existing use of the airspace would continue under this alternative and resources would continue to be managed in compliance with Federal law and DoD policy and regulations.

3.5.9.4 Mitigations

No mitigations are identified for this resource for this proposal due to the lack of surface activity.

3.5.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.5.10.1 Affected Environment

LAND STATUS, MANAGEMENT AND USE

Land Status

The combined area covered by MOAs used for night training under this proposal is almost 30 million acres (excluding restricted airspace). The State of Alaska is the predominant owner at 52 percent, followed by the Federal Government at 32 percent, of which about 4 percent is military land. About 16 percent is privately held, almost entirely by Native corporations. Figure B-17 shows the general land ownership underlying this extensive area. A breakdown of land ownership and management in the proposed area for NJT is provided as [Table 3-58](#).

Table 3-58. Land Status in the Night Joint Training Proposal Area

Landowner/Manager	Action Alternative (acres)
Federal	
Department of Defense	980,090
Department of Interior	7,711,750
State	
State-patented	12,052,000
State-selected	1,886,500
Private Land	
Private land	44,220
Native corporation (patented and selected)	4,259,040
Total	26,933,600

Source: ADNR 2011-2.

Land Management and Use

The underlying land is managed under various resource management and area plans of the appropriate Federal, State, and local jurisdictions. Much of the land underlying the MOAs is pristine and isolated. It supports a range of productive uses, isolated communities and settlements, and dispersed recreation and subsistence activities. Uses and activities largely reflect specific resources (e.g., energy resources, minerals, exceptional natural landscapes and settings). In particular, Federally and state-designated special use areas, communities and noise sensitive locations underlying the proposal airspace are listed in [Table 3-59](#), and the locations are shown in Figures B-16 and B-17 in Appendix B, *Definition of the Resources and Regulatory Settings*. These are each described in Appendix I, *Land Use, Public Access, and Recreation*.

Due to the sensitive nature of some of these areas, some minimum altitude and horizontal flight restrictions are in place to avoid direct or low overflights by military aircraft. Table D-6 in Appendix D, *Airspace Management*, lists all the noise-sensitive flight avoidance parameters for each airspace affected by EIS proposals.

The affected area under the MOAs has forests and mineral interests and a full spectrum of energy and productive uses. For the most part, aircraft training has no effect on surface activities. The underlying lands have been used for these purposes successfully despite ongoing overflights. Of note are the areas with outstanding and superb wind energy potential, including the following MOAs: Birch, Buffalo, Delta 2 and 4, Eielson, Fox 1/2/3, and Yukon 1/2/3/3ALow/3B/4.

Most of the land underlying MOAs is remote and extremely sparsely populated. A minimum overflight altitude of 500 feet AGL is required for all inhabited structures. For several locations this standoff

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altitude (and often a lateral distance as well) has been increased to minimize noise effects from overflights (see Appendix D, Table D–6).

The proposal includes night bombing for one MFE, annually using Oklahoma Impact Area on DTA-West. Land uses on DTA-West are described in detail in Section [3.2.10.1](#). Land uses on YTA are described in detail in Section [3.4.10.1](#).

Public Access

Access to surface infrastructure, including roads, trails, airfields and airports, and navigable and public waterways would not change under this proposal.

Table 3-59. Noise Sensitive Locations – Night Joint Training Proposal Area

Airspace	Sensitive Location	Communities/Inhabited Areas
Birch MOA	Tanana Valley State Forest Birch Lake SRC	Clear Creek cabins Shaw Creek camp
Buffalo MOA	Delta Junction Bison Range Delta National Wild and Scenic River Donnelly Creek State Recreation Site Tanana Valley State Forest	Healy Lake Lake George area
Delta MOA	Birch Lake SRC Donnelly Creek SRC Harding Lake SRA Quartz Lake SRC Salcha River SRC Tanana Valley State Forest	Hardin Lake
Eielson MOA	Gold King airstrip	Homes in vicinity of Gold King airstrip
Fox MOAs	Caribou calving areas Gulkana National Wild River Nelchina Public Use Area Newman Creek and Sheep Lambing area	Wood River Lodge
Viper MOA	Tanana Valley State Forest	Eielson AFB Moose Creek Outskirts of North Pole Pleasant valley subdivisions
Yukon MOA	Birch Lake SRC Chena River SRA Chena River Springs Resort Cirque Lake Dall sheep areas Forty Mile Wild and Scenic River Kandik River Peregrine falcon areas Steese Highway Salcha River Recreation Areas Tanana Valley State Forest Yukon-Charley National Wild and Scenic River	Central Circle City Chicken Chena Hot Springs and resort Eagle Goodpastor River valley Pleasant Valley subdivisions Pogo Strip area (mine site)

¹ Table does not include R-2211, R-2205, and R-2202 since these overlie military land.

Key: AFB=Air Force Base; MOA=Military Operations Area; SRA=State Recreation Area; SRC=State Recreation Center.

Source: Air Force 2008-2.

Recreation

Special areas for recreation under the widespread MOAs used for night training are listed in [Table 3-59](#). Descriptions of these areas are provided in Appendix I, *Land Use, Public Access, and Recreation*.

Recreation on DTA-West is described in Section [3.2.10.1](#). Recreation on YTA is described in Section [3.4.10.1](#).

3.5.10.2 Impact Assessment Methodology

The general methodology for evaluating land use, public access, and recreation is described in Section [3.1.10.2](#). The methodology for evaluating impacts from munitions expenditures is provided in Sections [3.2.2.2](#) and [3.2.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The following are the primary impacts of this proposal on land use, including public access and recreation:

- Effects of military overflights on underlying uses and activities (primarily from aircraft noise), as described in Section [3.1.10.2](#)
- Effects of weapons and munitions use on land uses, private and public access, and recreation, as described in Section [3.2.10.2](#)

Land Status, Management, and Use. The assessment of noise impacts on land use focuses on uses, primarily residential, that are sensitive to nighttime noise that may interfere with the sleep, rest, and relaxation of local inhabitants. Also considered are areas highly valued for their pristine qualities where man-made intrusions are absent or negligible.

Public Access. Public access is not affected by this proposal.

Recreation. This assessment considers whether recreational sites used at night, such as campgrounds and remote areas valued for extreme outdoor challenges, are affected by increased noise levels resulting from this proposal.

3.5.10.3 Environmental Consequences

3.5.10.3.1 Alternative A

Land Use, Management and Use. As described in Section [3.5.2.3.1](#), average noise levels in affected MOAs would increase by approximately 1 dB. This change would result in imperceptible change in noise levels experienced on the ground currently, but noise events would occur later in the night (after 10:00 p.m.) during the months of March and October. These noise events could occasionally be loud enough to awaken or annoy a small percentage of persons. All existing flight avoidance procedures as listed in Table D-6 (Appendix D, *Airspace Management*) would continue. Minor impacts on land use and sensitive locations would result from this action. Noise levels for R-2211, already at 66 dB DNL would increase to 67 dB DNL. Underlying areas have no permanent residences. An increase from 61 dB CDNL (from supersonic noise) in Fox 3 MOA and Paxon ATCAA to 62 dB CDNL represents a potential adverse impact on underlying residential areas but does not trigger the threshold of significant impact (see Section [3.5.2.2](#)). Existing noise avoidance procedures would continue to apply but some number of persons would likely be annoyed by aircraft overflights during 9 nights each year. Advance notifications of these activities generally reduces the level of annoyance on affected persons. Overall, these would not change underlying land uses in this region, but may be incompatible with the natural quiet surrounding remote communities. Existing avoidances would continue, and minimize some of this impact.

Conducting night bombing during one MFE (not in September, December, or January) using Oklahoma and Stuart Creek Impact Areas would slightly increase CDNL levels around these impacts areas (see Section [3.5.2.3.1](#)). Impulsive noise levels can cause annoyance depending on the distance and loudness to

the noise source. In this case, there are no inhabited areas near the impact areas. with the closest communities (Big Delta and Delta Junction) located over 20 miles from the impact areas. Some bomb drops may be audible, but the noise would diminish to levels that are not startling or likely to wake a sleeping person. The impact to some dispersed recreational use, such as camping and hunting in surrounding land, would also be minimal. Overnight campers outside the DTA-West boundary may experience loud noise during the 2-week period of the exercise, and this may annoy some campers without prior knowledge of the events. Most local residents understand that military operations occur on DTA-West and public notifications about MFEs allows outdoor users to plan their activities to avoid times when military activities could conflict with their experience. Overall, this proposed activity would have minor impacts on land use and recreation.

Public Access. Under this proposal there would be no change to public access, either on the surface or air. No impact would occur to public access infrastructure. No impacts on any navigable or public waters would occur since no change to public access would occur.

Recreation. Minimal change in night noise under restricted airspace over military lands would have no impact on recreation use. Occasional overflights at night over extensive public lands where dispersed public use occurs may disturb persons who are in remote settings. This would be a negligible change in the quality of these areas and have minimal impact on recreational use. There would be no change to public access either on the surface or air access under this proposal; therefore, no indirect impacts on the use of recreational areas would occur. The effect of night bombing during one exercise each year on recreational use is described above.

Overall, implementation of night joint training under Alternative A would have no adverse effects on land use, access, and recreation.

3.5.10.3.2 Alternative B (Preferred Alternative)

Land Use, Management and Use. Impacts on land use under Alternative B are essentially the same as those projected for Alternative A. The projected noise increase (of 1 dB for affected MOAs) and numbers of additional events at night for Alternative A assumed those of an MFE month, whatever month it occurred. As such, the projected impact could occur during other months (not just March or October), but would be similar as described for Alternative A. From July through September, many people participate in outdoor recreation and camping. These times would be more sensitive to night operations in MOAs, although the projected change from current noise levels and night operations (10 percent increase for an MFE) is relatively minor. MFEs and associated proposed night activities would not take place in the months of September, December, and January.

The benefits of expanding the flight avoidance area over the wild and scenic rivers under the expanded Fox 3 and new Paxon MOAs (see Section [3.5.10.4](#)), would reduce potential noise impacts on these valuable resources, and lessen the intrusion for persons using these areas at night, such as campers and hunters. Similarly, avoidance of areas of concentrated activity would reduce the potential for overflight and disturbance on communities at night.

Public Access. Under this proposal there would be no change to public access, either on the surface or air. No impact would occur to public access infrastructure. No impacts on any navigable or public waters would occur since no change public access would occur. If a decision supports the expansion of the Fox 3 and new Paxon MOAs, a mitigation to provide a VFR corridor over the Richardson Highway would provide for air access for communities under that corridor would also apply at night time.

Recreation. Minimal change in night noise under restricted airspace over military lands would have no impact on recreation use. Noise impacts on recreation would be similar to Alternative A. There would be

no change to public access either on the surface or air access under this proposal; therefore, no indirect impacts on the use of recreational areas would occur.

Overall, implementation of night joint training under Alternative B would be similar to Alternative A, and would have no adverse effects on land use, access, and recreation.

3.5.10.3.3 No Action Alternative

For the No Action Alternative, there would be no change in night operations in MOAs and selected restricted airspace from current levels, and no change or additional impacts would result.

3.5.10.4 Mitigations

The preceding analysis of effects on land use, public access, and recreation has identified potential minor adverse impacts. The following mitigations are proposed to manage future impacts on land use from night training.

- Land Use – Management
 - **National Wild and Scenic Rivers Protection.** For the period of May 15 to September 30, expand the Gulkana (west, middle, and north forks) and Delta National Wild and Scenic Rivers' (and others, as designated) Flight Avoidance Areas to include portions within new MOA boundaries using a 5-NM buffer either side of the river centerline with 5,000 feet MSL minimum altitude. The river corridors will include their headwater lakes areas (Tangle Lakes and Dickey Lake).
- Land Use – Management, Recreation
 - **Concentrated Activity Areas.** Comply with flight avoidance areas established by the 11th AF Airspace and Range Team and listed in the 11th AF Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th AF Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist).
- Land Use – Management, Access, Recreation
 - **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxson MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxson low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxson Fish Hatchery from the higher flying military aircraft.

3.5.11 Infrastructure and Transportation (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for a general discussion of infrastructure and transportation resources in the region. The proposed action does not involve any new activities that would affect access and use of public roadways or infrastructure. This resource is not further analyzed for this proposal.

3.5.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.5.12.1 Affected Environment

The affected environment would include all or portions of the nine census-defined areas as described in Appendix B, Section B.12, Socioeconomics.

3.5.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics described in Section [3.1.12.2](#).

3.5.12.3 Environmental Consequences

3.5.12.3.1 Alternative A

Potential impacts on socioeconomic resources and activities could result from changes in noise and resulting impacts on residential areas and evening recreational users. In addition, night training could impact civilian aviation from an increase in the amount of night operations in the Alaska airspace, which in turn could result in economic impacts. However, it is anticipated that a change in flight operations to night hours would not substantially change noise levels under the airspace and would not be expected to adversely impact residential or recreational users (as described in Section [3.5.2.3](#), Noise, and Section [3.5.10.3](#), Land Use). In addition, current night time training activities within the affected environment would not be anticipated to present a significant impact on civilian air traffic since trends suggest that fewer IFR flights generally occur during the later evening hours and very little VFR flights occur during hours of darkness (Section [3.5.1.3](#)). Similarly, night bombing at two existing impact areas on DTA-West and YTA does not represent a change in activities (where some night bombing already occurs). Resulting noise levels of concern (62 dB CDNL and below and 130 dB PK 15 [met]) would remain within military boundaries and away from existing population centers. Therefore, the potential for impacts on socioeconomic resources from night training are anticipated to be low.

3.5.12.3.2 Alternative B (Preferred Alternative)

Under Alternative B, the number of nighttime sorties is expected to remain the same and occur during MFEs, as is the current situation, but would be divided between the months of March and October and would extend the operating hours until midnight and landing by 1:00 a.m. Under Alternative B, impacts on socioeconomic resources are anticipated to be similar to those described under Alternative A. Therefore, the potential for impacts to socioeconomic resources under Alternative B are anticipated to be low to medium.

3.5.12.3.3 No Action Alternative

Under the No Action Alternative, socioeconomic resources would remain under current existing conditions, as described in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.1.

3.5.12.4 Mitigations

The preceding analysis of effects on this resource has identified potential minor adverse but not significant impacts. The following mitigation are proposed to reduce these impacts.

- **VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The

corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxson low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxson Fish Hatchery from the higher flying military aircraft.

- **Concentrated Activity Areas.** Comply with flight avoidance areas established by the 11th AF Airspace and Range Team and listed in the 11th AF Airspace Handbook. Areas not specified by the ROD may be added, increased, decreased, or removed by the 11th AF Airspace and Range team as situations dictate (e.g., a mine and its air operations cease to exist).

3.5.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.5.13.1 Affected Environment

The NJT proposed action includes all of the areas underlying existing Alaska SUA. This ROI is described in Appendix B, Section B.13.3.

3.5.13.2 Impact Assessment Methodology

The general methodology for evaluating subsistence is described in Section [3.1.13.2](#).

3.5.13.3 Environmental Consequences

3.5.13.3.1 Alternative A

Potential impacts on subsistence resources and activities would include impacts on wildlife species as a result of noise changes in connection with increased night operations, including night bombing, in the Alaska airspace. These impacts are described in detail in Sections [3.5.2](#) and [3.5.8](#). Under Alternative A, the change in flight operations, including bombing, to night hours would not substantially change noise levels under the airspace and is not expected to adversely impact wildlife species. Therefore, no significant impacts, as defined by ANILCA, on subsistence resources or activities are expected.

3.5.13.3.2 Alternative B (Preferred Alternative)

Potential impacts on subsistence resources and activities would be the same as those described under Alternative A.

3.5.13.3.3 No Action Alternative

No changes in times of flight are proposed under the No Action Alternative. Therefore, subsistence resources would be the same as under current existing conditions, as described in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.1.

3.5.13.4 Mitigations

The preceding analysis does not indicate potential impacts on subsistence resources. If the Air Force implements the proposal to expand the Fox 3 and create the new Paxon MOAs, the following mitigation would benefit access for subsistence users of the regional airspace.

- VFR Flight Corridors.** Extend the VFR flight corridor over the Richardson Highway between Delta Junction and Glennallen to include the highway segment under the new Paxon MOA. The corridor laterally will be 3 miles on either side of the Richardson Highway and vertically go from the surface up to 4,500 feet MSL. (The MOA would only go down to 5,000 feet MSL over the corridor to allow a 500-foot buffer.) As an extra safety measure, designated VFR corridors are intended to be free of high-speed Air Force aircraft, thereby allowing unimpeded flight by civilian aircraft. Corridors such as this have been used extensively for the safe transit of civilian aircraft where the military currently flies low in MOAs. This new corridor would continue to allow unimpeded VFR flights below the floor of the proposed Paxon low MOA. An additional benefit of the VFR corridor is a reduced noise level over the Paxon Fish Hatchery from the higher flying military aircraft.

3.5.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.5.14.1 Affected Environment

The affected environment for NJT proposal includes four boroughs and one census area in which some portion of the proposal footprint is located. [Table 3-60](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children for areas comprising the proposal area. Note that the table characterizes existing population groups in the affected environment at a general level of detail and does not indicate whether the proposal would create an environmental justice effect.

Table 3-60. Minority Population, Low-Income Population and Children by Area

Night Joint Training (NJT)					
Area	Total Populations	Percent Low-Income	Percent Minority	Percent Alaska Native	Percent Children
Fairbanks North Star Borough	97,581	8.0	25.9	7.0	25.6
Valdez-Cordova Census Area	9,636	8.1	27.9	13.6	24.4
Matanuska-Susitna Borough	88,995	10.3	17.2	5.5	28.9
Bethel Census Area	17,013	18.2	89.1	82.9	36.5
Dillingham Census Area	4,847	18.3	82.4	71.6	32.9
Lake and Peninsula Borough	1,631	22.1	77.8	65.1	30.2
Denali Borough	1,826	6.1	11.6	3.6	22.5
Southeast Fairbanks Census Area	7,029	11.6	21.3	11.5	26.3
Yukon-Koyukuk Census Area	5,588	24.1	78.2	71.4	27.8
State of Alaska	710,231	9.6	35.9	14.8	26.4

Note: Except for the low-income data, which are based on the 2005-2009 American Community Survey conducted by the Census, numbers represent 2010 decennial Census data.

Sources: USCB 2010-1, 2010-2.

3.5.14.2 Impact Assessment Methodology

General Methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#).

3.5.14.3 Environmental Consequences

3.5.14.3.1 Alternative A

For NJT Alternative A, night flying and additional night bombing (until 1:00 a.m.) during MFEs would be permitted in the months of March and October only. No significant adverse impacts are identified. Mitigations are identified to reduce the effects of some adverse impacts in the preceding sections for this proposal. Therefore, impacts from this NJT proposal would not create disproportionately high and adverse environmental or health effects on minority or low-income populations or children.

3.5.14.3.2 Alternative B (Preferred Alternative)

Under Alternative B, night flying would be similar to Alternative A but would occur during all months of the year during MFEs. Therefore, impacts from NJT Alternative B would not create disproportionately high and adverse environmental or health effects on minority or low-income populations or children.

3.5.14.3.3 No Action Alternative

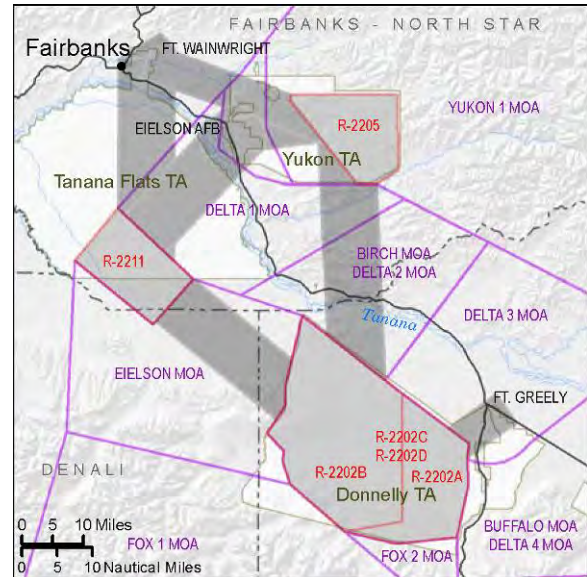
For the No Action Alternative, operations would continue to cease before 10:00 p.m. in JPARC MOAs. There would be no additional disproportionately high and adverse environmental or health effects on minority and low-income populations or children.

3.5.14.4 Mitigations

No mitigations are identified for this resource.

3.6 UNMANNED AERIAL VEHICLE ACCESS (DEFINITIVE)

UAVs conduct reconnaissance, surveillance, and other important activities; UAV access throughout the JPARC ranges and airspace is critical to enhance JPARC training and exercises. It is essential to integrate them with other forms of military activities to ensure seamless operations. The UAV composite footprint overlies an estimated 742,430 acres (1,160 square miles) between Fairbanks and Delta Junction. (Refer to the gray-shaded area in the map to the right.) Almost half this area is military-owned. The proposed transit corridors for UAVs would not involve air operations considered hazardous or munitions use. Based on this, the potential for significant impacts on physical, water, cultural, infrastructure and transportation, and socioeconomics is estimated as low. In response to future mission change and force structure modernization, it is likely that the Army and other Services currently training in Alaska will be required to adapt their training and testing on JPARC lands and ranges. The Army will evaluate any additional modernization and enhancement of JPARC capabilities based on future Service requirements in accordance with NEPA.



Following the impact assessment for each resource, the final mitigations are listed that have been selected by the Army and Air Force to avoid, reduce, or implement management actions for potential significant adverse impacts from implementing the proposed action. These are included to provide the public and other agencies with necessary information on the final mitigations proposed by the Army and Air Force.

3.6.1 Airspace Management and Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.

3.6.1.1 Affected Environment

[Figure 3-35](#) depicts the location of each corridor proposed to link the different UAV launch locations and the restricted areas through which the UAVs would transit during their flight missions. [Table 2-15](#) indicates the proposed dimensions, proposed altitudes, and estimated use of each corridor. Each corridor may be stratified as illustrated in [Figure 3-35](#) to permit activation of only the altitude layer(s) needed to support the individual UAV types shown in [Table 2-15](#). The following sections describe the current uses of those areas where each corridor is being proposed.

Scoping comments expressed concerns over the safe operation of unmanned aircraft (see Section [3.6.3](#), Flight Safety) and the potential impacts of the restricted area corridors on those areas where aviation uses are currently unrestricted.

MILITARY AIRSPACE USE

MOAs and Restricted Areas

The affected airspace environment for the proposed UAV corridors includes the MOAs, airfields, and Class D airspace within or near the corridors that would link launch points and R-2202, R-2205, and

R-2211. The representative use of these restricted areas and MOAs was addressed previously for the other airspace proposals.

Corridors may be used by UAVs to fly from/to any one of the locations serviced by the corridors. Mission profiles may require UAVs to loiter inside restricted airspace to conduct military operations and then proceed to other areas. The airfield locations from which the different UAV types would be launched include Eielson AFB, Allen AAF, and Ladd AAF. Each airfield is located within Class D airspace with a control tower being responsible for airfield operations. The proposed corridors would border this Class D airspace as shown in [Figure 2-11](#). The Fairbanks TRACON provides approach/departure control services to Eielson AFB and Ladd AAF (Fort Wainwright), while Anchorage ARTCC serves Allen AAF. While Eielson AFB and Ladd AAF are used exclusively for military aircraft, Allen AAF also serves civilian aircraft with prior permission and approval with the vast majority of the airfield operations being military aircraft. This airfield is frequently used for practice assault landings by JBER cargo aircraft. All three airfields have instrument approach capabilities, as needed, for conducting IFR operations.

Other Military Airspace Uses

Other airspace uses in the region, described in Section [3.1.1](#), would not be affected by the proposed corridors and therefore are not discussed any further in the analyses of these proposals.

CIVIL AVIATION AIRSPACE USE

The overall uses of the airspace flown by IFR and VFR aircraft in the affected environment where the proposed corridors would be located were generally discussed in Sections [3.1.1](#) through [3.4.1](#). The following sections note any additional uses within those corridor locations.

Federal Airways

The Federal airways noted in the following table ([Table 3-61](#)) transit within or in close proximity to the proposed corridors. The average daily use of each airway by IFR aircraft, as reported by the FAA, is listed in [Table 3-3](#). While some airways do not transit within the proposed corridors, aircraft transitioning between these airways and the Fairbanks Class D airspace may transit through areas where the UAV corridors are proposed.

Table 3-61. Potentially Affected Federal Airways

Proposed Corridors	Federal Airways
Corridor between Eielson AFB and R-2211	V-444
Corridor between Eielson AFB and R-2205	None
Corridor between Allen AAF and R-2202	V-444
Corridor between R-2202 and R-2205	V-444
Corridor between R-2205 and R-2211	V-444
Corridor between Fort Wainwright and R-2211	V-444, B26
Corridor between Fort Wainwright and R-2205	None

Key: AAF=Army Air Field; AFB=Air Force Base.

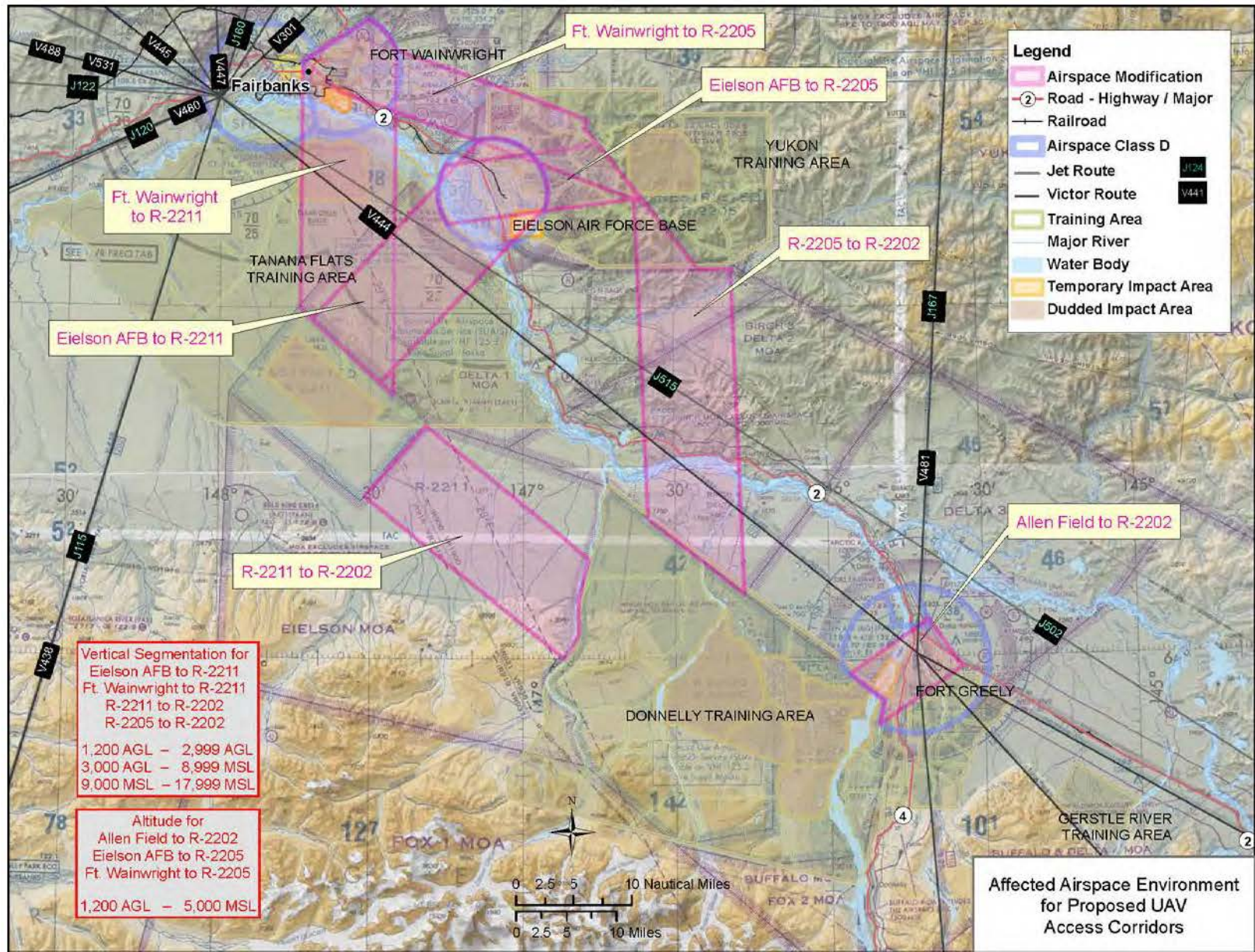


Figure 3-35. Affected Airspace Environment for Proposed Unmanned Aerial Vehicle Access Corridors

Jet and RNAV Routes

The jet routes noted in the following table ([Table 3-62](#)) lie above and within close proximity of the proposed corridors. The average daily use of each jet/RNAV route, as reported by the FAA, is shown in [Table 3-3](#). While these routes are established at altitudes above the proposed corridor altitudes, aircraft climbing and descending between any one route and the Fairbanks International Airport may transit through those areas proposed for the UAV corridors.

Table 3-62. Potentially Affected Jet/RNAV Routes

Proposed Corridors	Jet/RNAV Routes
Corridor between Eielson AFB and R-2211	J502-515
Corridor between Eielson AFB and R-2205	NCA 22
Corridor between Allen Army Airfield and R-2202	J502-515
Corridor between R-2202 and R-2205	J502-515
Corridor between R-2205 and R-2211	J502-515
Corridor between Fort Wainwright and R-2211	J502-515
Corridor between Fort Wainwright and R-2205	NCA 22

Key: AFB=Air Force Base; RNAV=Area Navigation.

VFR Air Traffic

Sections [3.1.1](#) through [3.4.1](#) describe the VFR flight activities throughout the airspace environments generally affected by the individual airspace proposals that generally include those areas proposed for the UAV corridors. Currently, VFR aircraft can transit through these areas relatively unrestricted and at altitudes that present minimal interactions with military aircraft. There is extensive VFR traffic along those commonly used highways/flyways where several of these UAV corridors are proposed. VFR flights also occur to some extent in areas where the other corridors are proposed to include the Chena River, the Chena Lakes recreation site and the areas encompassing TFTA. While the number of VFR flights and seasonal timeframes these aircraft typically operate throughout each of these proposed areas is unknown, scoping comments suggest many of these flights serve important business, recreation, and subsistence purposes.

Public Airports and Chartered Private Airfields

The different public airports and private airfields located within the affected regions of these proposed corridors are included among those listed and shown in Appendix D, *Airspace Management*. As noted previously, many of these airports/airfields are used for business, recreational, and subsistence purposes by both IFR and VFR air traffic. While none are beneath or immediately adjacent to the affected airspace areas, several VFR flyways, airways/jet routes, and other flight courses used by VFR and IFR aircraft and ATC while operating to/from regional airfields transit through or near the areas/altitudes proposed for these corridors. Currently, military operations have little impact on these flyways/routes.

3.6.1.2 Impact Assessment Methodology

The methodology described in Section [3.1.1.2](#) was used to assess impacts of each corridor proposal on other airspace uses in each of the affected regions.

3.6.1.3 Environmental Consequences

The FAA and DoD continue to discuss the most efficient and effective means of integrating UAV operations, including both the aircraft and ground support systems, into the National Airspace System so

as to provide for the safety of all airspace uses. Pending future decisions on this matter, assessing the impacts of a restricted area designation for each corridor proposal considers the most restrictive option for how this may impact other airspace uses.

The general purpose and use of all proposed corridors are similar in that they are designed to provide protective airspace for transiting unmanned aircraft directly between the different launch points and existing restricted areas. They are not intended to be used for any prolonged training activities while transiting these corridors. The UAV types using these corridors travel at airspeeds averaging 120 knots and each would have to be equipped with a Mode C transponder and FAA-approved lighting that would enable radar tracking and observation of these aircraft during hours of darkness.

The proposed structure and estimated use of each proposed corridor discussed in the sections below are summarized in [Table 2-15](#) and depicted in [Figure 3-35](#). [Figure 2-11](#) provides a general representation of how each corridor would be structured with the three altitude layers that may be activated individually or simultaneously, as needed to accommodate the planned flights. The estimated use of each corridor is based on the minimum training requirements pilot-operators must meet to maintain proficiency for each UAV type and associated flight mission activity. Scheduled use of each corridor/altitude layer(s) is estimated to occur four times daily, two days per week (Monday through Friday) between 7:00 a.m. and midnight. Corridor(s) required for mission execution would be announced via the SUAIS, NOTAM system, and other communications, as appropriate, to ensure the safety of the flying public. One or more corridors may be activated concurrently in some cases to permit the launching and transition of UAVs among the different target areas such as would occur with the proposed link between R-2202 and R-2211.

The planned use of each corridor would be coordinated in advance between the responsible USARAK or Air Force functions, controlling FAA ATC facility, and the respective airfield managers, to best schedule those mission activities around those timeframes of other higher density/priority military and civil air traffic operations. The corridor restricted area would typically remain active during an entire training mission to facilitate a return to base upon mission completion, changing weather conditions, or an emergency situation where an immediate recovery may be required. Therefore, the duration of this active airspace would vary with each mission but would be kept to the minimum necessary. In all cases, this restricted airspace would be under the positive control of the Fairbanks TRACON or Anchorage ARTCC to ensure separation between the UAV flight activities and nonparticipating IFR air traffic and to provide priority for any emergency flights requiring access through this airspace. The scheduled use of all corridor activations would be provided via the SUAIS and other advisory services/sources.

Public and agency scoping comments expressed concerns over the potential effects the UAV corridor proposals may have on both IFR and VFR air traffic within the region of each corridor. The specific nature and extent of such impacts on all airspace uses will be closely examined in the FAA aeronautical study of each corridor proposal. Until this Study is completed and decisions are made between the FAA and military on how airspace needs for unmanned aircraft can most effectively be managed, the extent of any impacts these proposals may have on both IFR and VFR aviation and how they could be mitigated cannot be specifically determined and addressed in this EIS. Therefore, the following sections provide a more general assessment of how those airspace uses may be affected by each proposal.

3.6.1.3.1 Link Between Eielson AFB and R-2211

3.6.1.3.1.1 Alternative A (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The proposed restricted area would adjoin the ceiling of the Eielson AFB Class D airspace and would require that UAV flights be separated, as appropriate, from other airfield operations while transitioning

between the runway environment and the overlying corridor. Procedures would be outlined in a formal agreement among the responsible UAV functions, Eielson AFB airfield management, and the Fairbanks/Anchorage ATC facilities to define how this airspace would be integrated with the Class D airspace structure and uses, when active. Procedures and responsibilities in this agreement would have to ensure the UAV these operations would be segregated from airfield operations and other air traffic in the surrounding area on a real-time basis so as not to conflict with traffic operating within the terminal airspace serving Eielson, AFB, Ladd AAF, and Fairbanks International.

CIVIL AVIATION AIRSPACE USE

Federal Airways

The Federal airway potentially affected by this proposal is the V444/T232/A2/A15 segment that intersects this corridor. An average of two IFR flights transits this airway daily with typical assigned altitudes at 8,000 feet MSL and above. This is within the range of altitudes proposed for this corridor use. Depending on those days and time periods this restricted area is activated, there may be a minimal impact on these fewer daily flights if they must be delayed or rerouted around this corridor by the FAA. Rerouting would require an extensive distance to the north of Eielson AFB or south of R-2211 to remain clear of this corridor. Since this active corridor would require positive ATC control at all times, Fairbanks TRACON and/or Anchorage ARTCC may be able to coordinate transit of IFR flights through this corridor on a case by case basis while UAV aircraft are in R-2211 and sufficiently clear of this nonparticipating air traffic.

Jet/RNAV Routes

Jet route J502-515 transits above the proposed corridor airspace with 6 to 12 average daily IFR flights typically operating at assigned altitudes of FL200 unless climbing/descending through lower altitudes between this route and Fairbanks International. Therefore, en route air traffic remaining at the upper altitudes would not be impacted by this active corridor. Airport arriving/departing air traffic may require rerouting, altitude restrictions, or other measures, as deemed necessary by ATC, to avoid transit through this restricted airspace.

VFR Air Traffic

This proposal has the greater potential to adversely affect VFR air traffic operating along the highways, flyways, and other flight paths commonly flown between Fairbanks and points south and southeast where they would typically operate through the area of this proposed restricted area. VFR aircraft would not be able to access the corridor's restricted airspace when active and the ability to transit beneath this airspace when active would depend on the altitude layer(s) being activated on a daily/individual basis relative to the lower altitudes needed by a VFR pilot. Activation of the low and mid layers would limit VFR flights beneath 1,200 feet AGL which may be problematic for some operations. The only options would be to circumnavigate this airspace for a considerable distance to the north or south of this corridor or delay planned flights until this airspace becomes available. VFR pilots would have to learn the scheduled and real-time active status of this restricted airspace via the NOTAM system, SUAIS, and other available advisory services prior to planning any flights through this airspace. The flight limitations and inconveniences this corridor may pose on VFR air traffic could have a significant impact on this aviation community.

Public Airports and Private Airfields

The only charted airfields in the immediate vicinity of the proposed corridor are the Clear Creek, and Blair Lake airstrips which are not for public use. Otherwise, Fairbanks International, Bradley, and several other more distant public and private airfields in the general area may be potentially affected by the ability for based aircraft to transit to/from destinations where their routes of flight would normally require transit through this proposed airspace. Fairbanks International is the only airport in this affected area

having published instrument arrival and departure routes with established “gates” for transferring control of air traffic between Fairbanks TRACON and Anchorage ARTCC. As noted by the FAA in the scoping comments, this corridor would have the potential to affect the routing and sequencing of Fairbanks arriving and departing traffic. It was also noted that the Fairbanks TRACON airspace provides flight training opportunities for both VFR and IFR flight training that could be also affected by this proposal.

3.6.1.3.1.2 Alternative B

As noted previously, the FAA and DoD are addressing all options for integrating UAV operations into the National Airspace System that may include other airspace designations and operational aspects/stipulations that would better accommodate all airspace uses where UAV flights are conducted. Currently, a Certificate of Authorization (COA) is used as an alternative to establishing a restricted area for limited UAV types and operational needs. USARAK currently uses this option as needed to support their limited UAV requirements. Because of the restrictive nature of a COA, the potential effects of establishing this type designation was considered to be the same as discussed above for Alternative A relative to the limitations and restrictions the active status of this corridor may have on other civil aviation airspace uses.

3.6.1.3.1.3 No Action Alternative

Under this alternative, no restricted area or other designated airspace would be considered for a UAV corridor; therefore, there would be no additional impacts on civil aviation use of this airspace.

3.6.1.3.2 Link Between Eielson AFB and R-2205

3.6.1.3.2.1 Alternative A (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The manner in which this corridor would be scheduled, coordinated, and managed relative to other air traffic and airspace requirements in this area would be the same as discussed above for the proposed Eielson AFB and R-2211 link. Activation of this proposed corridor would be independent of or in conjunction with the proposed R-2205 DMPTR expansion, as appropriate and necessary, to integrate/accommodate compatible USARAK and Air Force flight activities in R-2205, YTA, and Stuart Impact Area. In all cases, this airspace would be under the positive control of the Fairbanks TRACON or Anchorage ARTCC to ensure separation is maintained between this corridor use and other nonparticipating IFR air traffic in region. Procedures for integrating this corridor airspace with the Eielson AFB Class D airspace and segregating UAV operations from other air traffic would be defined in an agreement among all responsible entities.

CIVIL AVIATION AIRSPACE USE

Federal Airways

No Federal airways transit within or close proximity to this proposed corridor, therefore, the potential direct impacts of this restricted airspace on airway traffic would be minimal. However, as noted by the FAA, there may be indirect impacts on any airway traffic that would normally be directed by ATC through this affected airspace while transiting to/from Ladd AAF, Eielson AFB, or Fairbanks International. The FAA also noted the potential impact this corridor may have on a pilot’s use of the Chena radio beacon navigational point (fix) if, for any reason, it becomes necessary to execute a missed approach while approaching Fairbanks International during any weather conditions, training, or other conditions that would dictate use of this missed approach procedure.

Jet/RNAV Routes

The only route transiting the affected area is the NCA 22 track which is used primarily by en route air traffic operating at FL290 and above which would not be impacted by use of this restricted airspace corridor. As discussed for the Federal airways, the only potential effect may be the need to climb/descend aircraft through the restricted area altitudes while transitioning any route traffic to/from the Fairbanks International terminal airspace.

VFR Air Traffic

Public input suggests that the majority of VFR air traffic flights operate west of the Eielson AFB and adjacent YTA region with this corridor having minimal impact on this aviation community. VFR aircraft having a need to operate within this airspace would be restricted from doing so when this corridor was active, depending on the altitudes layer(s) activated. Pilots would need to check the SUAIS or other available sources prior to conducting any flight activities through this area.

Public Airports and Private Airfields

No public airports or private airfields are located in close proximity to this proposed corridor. The airfields in the general region, to include Bradley, Lakewood, and Greg'n Sage, would not be directly affected by this airspace proposal and most aircraft operating from these airfields would normally fly west of this airspace. As noted above, this proposal may affect some arrival and departure routes used by Fairbanks TRACON to manage air traffic flows within the Class D airspace surrounding Ladd AAF, Eielson AFB, and Fairbanks International.

3.6.1.3.2.2 Alternative B

The potential effects of establishing a COA or other FAA designated airspace would be the same as discussed above for Alternative A relative to the limitations and restrictions the active status of this corridor would have on other civil aviation airspace uses.

3.6.1.3.2.3 No Action Alternative

Under this alternative no restricted area or other designated airspace would be considered for establishing this UAV corridor, therefore, there would be no additional impacts on civil aviation use of this airspace.

3.6.1.3.3 Link Between Allen Army Airfield and R-2202

3.6.1.3.3.1 Alternative A (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The manner in which this shorter corridor would be scheduled, managed, and used is the same as previously discussed for all corridors. This corridor would provide the restricted airspace environment required to transit UAV aircraft between Allen AAF and R-2202.

Allen AAF serves Fort Greely military aviation activities while permitting civil aircraft to operate at this airfield on a prior permission required basis. This airfield has an operating control tower and three intersecting runways with the vast majority of the airfield operations being military, to include the JBER cargo aircraft practicing assault landings. Instrument approaches are established for two runways. Anchorage ARTCC is the controlling ATC facility for this airfield and would be providing positive control over the use of the proposed corridor when active to ensure separation is maintained between UAV operations and other nonparticipating IFR air traffic in region. Procedures for integrating this

corridor airspace with the Allen AAF Class D airspace and segregating UAV operations from other air traffic would be defined in an agreement among all responsible entities.

CIVIL AVIATION AIRSPACE USE

Federal Airways

This proposed restricted area corridor is located within or near V-444/T-232, V-515, and V-481/T226/B25 which all converge at Delta Junction. FAA data indicate the daily average use of these routes is two to three IFR flights. Therefore, potential impacts of this restricted area on the lower density use of these airways and any other off-route air traffic in this region should be minimal, depending upon the flight times/altitudes and the activated corridor times/altitudes use which would be under the positive control of the Anchorage ARTCC.

Jet/RNAV Routes

The daily average of three IFR flights en route along the J-167 segment transiting this region would be above those altitudes proposed for the restricted area corridor and therefore unaffected by this action. There also should be minimal impacts on any IFR air traffic operating through the corridor altitudes while transitioning between this and other routes in the area and the Fairbanks or Anchorage airports. As noted above, all IFR aircraft transiting this area and UAV use of the proposed restricted area would be under the positive control of the Anchorage ARTCC.

VFR Air Traffic

This proposed restricted area would cross the Richardson Highway flyway commonly used by VFR aircraft to transit between the Fairbanks area and points south of the Allen AAF. During those times this airspace is active, VFR flights would be restricted from operating through this area and would need to either delay their flights or circumvent Allen AAF to the west to remain clear of this corridor. This impact would be increased during any time periods that both this corridor and the proposed BAX restricted area are active. Such impacts could be considered significant depending upon the extent to which one or both restricted areas are activated and at what altitudes and those mitigation measures to be considered by USARAK to minimize impacts on this aviation community.

Public Airports and Private Airfields

Several airfields are located in the immediate area to include Delta Junction, and six to eight private airfields within about a 10-NM radius of the Allen AAF. Many of these airfield operations would be VFR flights which, as noted above, may be potentially impacted by restricted airspace crossing the Richardson Highway flyway. Civilian aviation use of the Allen AAF would continue to require prior planning and coordination to avoid those timeframes when UAV flights operating to/from the restricted airspace overlies that airfield's class D airspace.

3.6.1.3.3.2 Alternative B

The potential effects of establishing a COA or other FAA designated airspace would be the same as discussed above for Alternative A relative to the limitations and restrictions the active status of this corridor would have on other civil aviation airspace uses.

3.6.1.3.3.3 No Action Alternative

No restricted area or other designated airspace would be established to support any UAV operations; therefore, there would be no additional impacts on the current uses of this airspace.

3.6.1.3.4 Link Between R-2202 and R-2211

3.6.1.3.4.1 Alternative A (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The manner in which this corridor would be scheduled, managed, and used is the same as discussed previously for all corridors. This corridor would enable UAV training flights to transit between the two restricted areas so as to maximize use of their respective range capabilities. Scheduled use of this corridor would likely occur in conjunction with the launch site corridors to accommodate these interactive range missions.

CIVIL AVIATION AIRSPACE USE

Federal Airways

There are no Federal airways transiting within the proposed airspace although V-438/T227, V-481/T226, and V-444/T232 are located adjacent to one or both of the restricted areas proposed to be linked by this corridor. Traffic operating along these airways would not be directly affected by the proposed restricted area. However, it was noted by the FAA that the airspace and transfer points (gates) used by ATC to transition aircraft arrivals/departures between airways and the Fairbanks and Anchorage airports could be affected to some extent when this corridor is active.

Jet/RNAV Routes

No jet/RNAV routes are located within or near the proposed corridor and those altitudes used on these routes are above the proposed ceiling altitude of the corridor's restricted area. As noted above, this proposal could affect IFR flights transitioning through the airspace and gates used by ATC for Fairbanks or Anchorage arriving/departing traffic.

VFR Air Traffic

The potential impacts of this corridor would be similar to that discussed for the Realistic Live Ordnance Use Alternative B (restricted area linking R-2202 and R-2211). Depending on the altitudes activated for this corridor, VFR air traffic may be unable to transit through this area at the lower altitudes required to remain below this active airspace. Depending on the lesser volume of VFR aircraft that operate within this area, it cannot be determined to what extent this restriction would impact this aviation community. Those VFR pilots having a need to operate within this area may have to delay or otherwise alter their flights to avoid this restricted area when active. The active status of this airspace would be provided via the SUAIS and other advisory services.

Public Airports and Private Airfields

No public or private airfields are located within close proximity to this proposed corridor with Gold King Creek and a few other public/private airfields being more distant (20 to 30 NM) from this affected area. While this proposal has no direct effects on these airfields, based aircraft operating in this region that encompasses the existing Eielson MOA may be affected to the extent that they must transit this area to reach their destination.

3.6.1.3.4.2 Alternative B

The potential effects of establishing a COA or other FAA designated airspace would be the same as discussed above for Alternative A relative to the limitations and restrictions the active status of this corridor would have on other civil aviation airspace uses.

3.6.1.3.4.3 No Action Alternative

No restricted area or other designated airspace would be considered for UAV operations; therefore, there would be no additional impacts on current civil aviation use of this airspace.

3.6.1.3.5 Link Between R-2205 and R-2202

3.6.1.3.5.1 Alternative A (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The manner in which this lengthier corridor would be scheduled, managed, and used is the same as generally discussed for proposed corridors. As noted previously for the R-2211 and R-2202 proposal, this corridor would be used for those training missions where UAV may transition between these restricted areas and use the range impact areas within each. It would also most likely be activated concurrently with other proposed corridors to accommodate this interactive range use.

CIVIL AVIATION AIRSPACE USE

Federal Airways

This proposed corridor would cross V-444/T232 and could encompass those altitudes assigned by ATC for this route air traffic. Therefore, this proposal may have moderate potential impacts on the reported two to three average daily flights using this airway and any transition of these aircraft to/from Fairbanks International or other destinations within in this region. The extent of any impacts would depend on the activation periods relative to the airway traffic altitudes and any airport arrivals/departures transitioning to this airway or others in the area. If necessary, ATC may have to reroute or delay nonparticipating aircraft from this active corridor, when necessary. Such potential impacts and mitigation measures will be examined by the FAA.

Jet/RNAV Routes

The two jet/RNAV routes transiting within or near this proposed corridor are J502-515 and J167. The daily average 6-12 IFR flights on J520-515 and 3 IFR flights on J-167 would normally transit at altitudes above the corridor ceiling and, therefore, not be impacted by this active restricted area. Any traffic transitioning between either one of these routes and Fairbanks International climbing/descending through the corridor airspace/altitudes may be impacted if it became necessary for ATC to direct this traffic around this airspace. The extent of such impacts would depend on the timing of those flights relative to corridor activation times and ATC options for routing this traffic through or outside of the corridor airspace.

VFR Air Traffic

This corridor may have the potential for moderate to significant impacts on those VFR aircraft that frequently operate along those highway, river, and pipeline flyways commonly flown by this traffic between the Fairbanks and Delta Junction areas and points in between since this corridor would intersect those routes. The extent of such impacts would depend on the corridor activation times/altitudes as the UAV use of the higher altitudes layer(s) may have little impact on this aviation community. If necessary to activate the low altitude layer, this may require flight delays or rerouting, as necessary, to avoid this restricted airspace. Pilots would need to obtain the active status of this airspace through NOTAMs, the SUAIS, and other available advisory services prior to conducting a flight through this area.

Public Airports and Private Airfields

A number of public and private airfields are located in the Fairbanks and Delta Junction areas that, while not directly affected by this proposal, may have based aircraft that would be subject to flight restrictions, delays, and other inconveniences if their route of flight transited this proposed airspace. The extent of any impacts would be as discussed above for both IFR and VFR flight routes.

3.6.1.3.5.2 Alternative B

The potential effects of establishing a COA or other FAA designated airspace would be the same as discussed above for Alternative A relative to the limitations and restrictions the active status of this corridor would have on other civil aviation airspace uses.

3.6.1.3.5.3 No Action Alternative

No restricted area or other designated airspace would be considered to support UAV operations; therefore, there would be no additional impacts on civil aviation use of this airspace.

3.6.1.3.6 Link Between Fort Wainwright and R-2211

3.6.1.3.6.1 Alternative A (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The manner in which this corridor would be scheduled, managed, and used is the same as discussed initially. This restricted area would cross the TFTA which has some limitations on the public use of the land areas encompassing this training area. The corridor would adjoin the class D airspace overlying Fort Wainwright (Ladd AAF) and would therefore require a coordinated effort in planning UAV takeoffs, landings, and transition to the restricted area corridor be appropriately segregated from other airfield operations and missions within and outside of this terminal airspace. Procedures for integrating this corridor airspace with the Ladd AAF Class D airspace and segregating UAV operations from other air traffic would be defined in an agreement among all responsible entities.

CIVIL AVIATION AIRSPACE USE

Federal Airways

This proposed corridor would cross V-444/T232 and have the potential for impacts on this airway traffic as discussed previously for the other corridors proposed to intersect this airway. Active use of this corridor may also affect the airspace and altitudes used by ATC within the Fairbanks terminal radar service area to route traffic to/from Fairbanks International, Ladd AAF, and Eielson AFB. The extent to which this corridor would impact control and management of air traffic operations in this airspace environment will be further examined in the FAA aeronautical study.

Jet/RNAV Routes

En route air traffic in level flight at the higher altitudes on J502-515 and other routes transiting within/near this affected area would not be impacted by this proposed corridor. As discussed for the previous proposals having corridors beneath this jet route, any impacts that may exist would be on those aircraft climbing/descending through the active corridor altitudes while being directed by ATC to/from Fairbanks International. As the positive controlling agency for this airspace, Anchorage ARTCC would take those actions necessary to ensure separation between nonparticipating IFR aircraft and the active corridor. The extent to which this may cause any delays or rerouting to avoid this restricted airspace

would depend on the corridor activation times/altitudes relative to the Fairbanks air traffic densities during those periods.

VFR Air Traffic

The potential impacts this proposed corridor may have on VFR air traffic would be the same as discussed previously for other restricted airspace proposals crossing those commonly used VFR flyways.

Public Airports and Private Airfields

The location of this corridor within the Fairbanks terminal airspace and its close proximity to Fairbanks International, Eielson AFB, the Bradley airport, and several private airfields in this general area may impact the ATC options for routing air traffic arrivals/departures through this airspace environment. Any potential impacts this proposal may have on this terminal airspace environment, arrival/departure routes and gates, and instrument procedures would be the focus of the FAA aeronautical study.

3.6.1.3.6.2 Alternative B

The potential effects of establishing a COA or other FAA designated airspace would be the same as discussed above for Alternative A relative to the limitations and restrictions the active status of this corridor would have on other civil aviation airspace uses.

3.6.1.3.6.3 No Action Alternative

No restricted area or other designated airspace would be considered to support UAV operations; therefore, there would be no additional impacts on civil aviation use of this airspace.

3.6.1.3.7 Link Between Fort Wainwright and R-2205

3.6.1.3.7.1 Alternative A (Preferred Alternative)

MILITARY AIRSPACE USE

Proposed Restricted Area Use

The manner in which this corridor would be scheduled, managed, and used is the same as discussed previously to link Fort Wainwright with R-2211. Similarly, procedures for integrating this corridor airspace with the Ladd AAF Class D airspace and segregating UAV operations from other air traffic would be defined in an agreement among all responsible entities.

CIVIL AVIATION AIRSPACE USE

Federal Airways

This corridor would not intersect any Federal airways and therefore would not have any direct impacts on airway traffic. The location of this corridor could indirectly impact the airspace used by ATC to route Fairbanks International air traffic to/from those airways that converge on the Fairbanks navigational aid (VORTAC).

Jet/RNAV Routes

This corridor would also not intersect any jet routes in the area and therefore not impact this en route traffic other than potentially any transitioning of this route traffic between a jet route and Fairbanks International as discussed previously for these potential impacts. Positive control of this corridor and both the en route and terminal airspace environments by either the Fairbanks TRACON or Anchorage ARTCC would ensure separation between the UAV operations and IFR air traffic.

VFR Air Traffic

This proposed corridor would be more distant from those areas and flyways where VFR air traffic more frequently operate and may therefore have less impact on this aviation community. Those VFR aircraft operating from public and private airfields in this locale and having a need to travel within the affected area may be impacted during those periods this airspace is active. The extent of any impacts on these aircraft would depend on the corridor activation times/altitudes. Preplanning and awareness of the scheduled and real-time use of this corridor would be required for any VFR flights requiring transit through this airspace.

Public Airports and Private Airfields

This corridor would have generally the same potential effects on the Fairbanks terminal airspace in which all air traffic in this area is managed by ATC for Fairbanks International, Fort Wainwright (Ladd AAF), and Eielson AFB as discussed for other corridors potential affecting this airspace environment.

3.6.1.3.7.2 Alternative B

The potential effects of establishing a COA or other FAA designated airspace would be the same as discussed above for Alternative A relative to the limitations and restrictions the active status of this corridor would have on other civil aviation airspace uses.

3.6.1.3.7.3 No Action Alternative

No restricted area or other designated airspace would be considered to support UAV operations; therefore, there would be no additional impacts on civil aviation use of this airspace.

3.6.1.4 Mitigations

The preceding analysis of effects on this resource has identified adverse and potentially significant impacts. The following mitigation is proposed to reduce these impacts.

- Pending the FAA's study of the preferred airspace proposal alternatives to determine specific impacts and mitigation measures to be taken to minimize any impacts on VFR and IFR air traffic, other existing mitigations would continue to be relevant in addressing potential impacts of the airspace proposals.

3.6.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.6.2.1 Affected Environment

The affected area comprises the areas beneath the proposed restricted area airspace corridors. The proposed corridors connecting Fort Wainwright to R-2211, R-2211 to Eielson AFB, and Eielson AFB to R-2205 are located almost entirely in DoD training areas. The sound environment in the training areas is characterized by military training, noise including munitions firing and detonation and ground and air vehicle maneuvers. The corridors linking R-2205 to R-2202, R-2211 to R-2202, Fort Wainwright to R-2205, and Allen AAF to R-2202 include substantial quantities of land area not owned by DoD. However, with the exception of the corridors linking Fort Wainwright to R-2211 and Fort Wainwright to R-2205, these areas are included entirely beneath military SUA. Baseline time-averaged noise levels (L_{dnmr}) beneath JPARC SUA are listed in [Table 3-56](#).

3.6.2.2 Impact Assessment Methodology

The methods used to assess noise impacts associated with Fox 3 MOA Expansion and New Paxon MOA were also used to assess noise impacts associated with proposed UAV training. Noise models, noise metrics, and a brief description of methods used to interpret results are described in Section [3.2.2.2](#). Scoping results indicated that the population in the ROI is concerned about noise, and particularly about noise in areas that are currently quiet. For this analysis, noise impacts would be expected to be perceived as significant if airspace noise levels were to exceed 65 dB L_{dnmr} or 62 dB CDNL and increase by greater than 1.5 dB. Noise impacts would also be considered potentially significant if substantial increases in noise level (i.e., greater than 10 dB) were to occur in areas that are currently relatively quiet.

The UAV aircraft proposed for use in JPARC include several propeller-driven aircraft and several rotorcraft. The aircraft are designed to be able to loiter on location for extended periods of time. To support this requirement, the aircraft are equipped with relatively small and fuel-efficient engines. Noise levels generated by UAV aircraft have not been added to the NOISEMAP noise database. Therefore, surrogate aircraft were selected to represent noise levels for noise modeling purposes. The Cessna 172 *Skyhawk* (160-hp engine) was selected to represent the propeller-driven UAV aircraft, which all use smaller engines and which would be expected to generate less noise. The Bell 222 (618-shaft-hp engine) was selected to represent the rotorcraft UAVs. The Bell 222 is equipped with a larger engine than the UAVs proposed to be used, and the UAVs would be expected to generate less noise than the Bell-222.

3.6.2.3 Environmental Consequences

3.6.2.3.1 Alternative A (Preferred Alternative)

It is estimated that the proposed UAV corridors would be used up to four times per day on 2 days per week. The corridors would have a floor altitude of 1,200 AGL. Overflight noise levels would be similar to noise levels generated by common civilian aircraft. Time-averaged noise levels in the corridors were calculated under the highly conservative assumption that all UAVs would follow a single flight track and would fly at the lowest altitude permitted. Under this scenario noise levels generated by the proposed UAV operations would be approximately 35 dB L_{dnmr} . UAV overflight could potentially result in annoyance, but noise impacts would not exceed significance thresholds established for this action.

3.6.2.3.2 Alternative B

Under Alternative B, the same UAV operations would occur, but would not take place in designated restricted area airspace. Noise levels generated would be expected to be the same as under Alternative A.

3.6.2.3.3 No Action Alternative

Under the No Action Alternative, restricted area UAV corridors would not be established and UAV activity would continue to occur as it does under baseline conditions and no additional noise impacts would occur.

3.6.2.4 Mitigations

No mitigations are identified for this resource.

3.6.3 Safety

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.3.

3.6.3.1 Affected Environment

FLIGHT SAFETY

The success of military UAV deployments and the increasing interest in UAV use by both military and civilian interests have also increased concerns over operating those unmanned aircraft in the National Airspace System. Such concerns were of particular interest in the public scoping comments and, as noted previously, this matter is under study by the FAA and DoD. Analyses of UAV flight safety data and operational studies take into account the reliability of these UAV systems and their potential accident risks. While the accident rates for UAVs can be correlated to manned-aircraft Class A mishap rates, they differ fundamentally from other aircraft mishaps in that they have historically proven to be attributable to human, material, and communication factors, with human-related factors being the most common. UAV accident rates have decreased since introduction of these aircraft by the U.S. military in 1987; technologies have advanced, operators have become more experienced with enhanced training techniques, and command and control procedures have improved. Many of the UAV mishaps in recent years have been under combat conditions. A projection of the recent UAV mishap trends suggests that accident rates will approach those of general aviation and manned military aviation (Air Force Air Mobility Command 2010).

FAA regulations (JO 7610.4, *Special Operations*) (FAA 2009), require that remotely operated aircraft must provide an equivalent level of safety and comparable see-and-avoid capabilities as are required of manned aircraft to operate in the National Airspace System. The FAA continues to assess the potential flight risks of unmanned aircraft to other airspace uses and has limited military UAV operations to restricted airspace or COA corridors that separate these operations from those of other aircraft. Significant progress is being made on technologies such as GPS navigation and collision avoidance systems that provide “sense and avoid” capabilities and provide ground-based pilots with information on conflicting aircraft in the area. However, until such technologies can provide an equivalent level of flight safety as manned aircraft using “see and avoid,” UAV operations outside protected airspace is not permitted.

To ensure an equivalent level of safety while operating within the proposed airspace, the UAV would have to either be under primary radar coverage, have forward or side-looking cameras, have electronic detection equipment, or be observed from ground sites or chase aircraft. The UAV aircraft would always operate under IFR procedures with direct communications maintained between ATC and the pilot-operator. The UAV position, altitude, airspeed, and direction of flight would be constantly monitored using its onboard transponder and automated ATC equipment.

UAV flight over populated areas is not permitted; therefore, the probability of a UAV mishap in a populated area is extremely low. However, as with other aircraft, it cannot be totally discounted. The general areas proposed for the UAV corridors have relatively little or no population. This, coupled with the unique nature of UAV operations and their relatively small size and slow speeds, would lessen the impact of a potential mishap. If an accident were to occur, local emergency response teams would respond, as they would to any mishap, to contain any damage. Ground crews operating the UAV are trained to respond to any aircraft emergencies that could occur.

GROUND SAFETY

UAV armaments described in [Table 2-15](#) would not be used within these corridors; therefore, this alternative does not include activities that pose ground safety hazards, such as air-to-ground or live-fire ordnance training. Consequently, impacts on ground safety are not expected.

3.6.3.2 Impact Assessment Methodology

FLIGHT SAFETY

The impact assessment methodology discussed in Section [3.1.3.2](#) was used, as appropriate, to address the potential flight safety impacts of UAV operations on other airspace uses.

3.6.3.3 Environmental Consequences

3.6.3.3.1 Alternative A (Preferred Alternative)

FLIGHT SAFETY

The following flight safety considerations would be the same for all seven proposed UAV corridors:

Aircraft Mishap Potential

The potential risk of an aircraft mishap for UAV operations under this alternative would be low. As discussed previously, mishap rates for UAV aircraft continue to decline as technologies, pilot-operator experience, and other advances provide for the enhanced command, control, and operation of these flight activities. While the potential for a mishap cannot be discounted, FAA requirements and restrictions for operating these aircraft and the protective corridors within which these UAV activities are proposed would segregate these aircraft from nonparticipating aircraft while avoiding overflight of populated areas. In the event an accident were to occur, immediate emergency response by military and local civilian agencies would help contain any damage resulting from this mishap.

Near Miss/Midair Collision Potential

The potential for a near miss/midair collision between UAV and other military or civilian aircraft would be minimal since these operations would be contained within protective airspace that separates these activities from other aircraft. The positive control of this airspace by Anchorage and/or Fairbanks ATC would help ensure other nonparticipating aircraft do not enter this airspace unless required separation can be maintained, if necessary to permit IFR transit through an active corridor. VFR pilots would have to remain clear of the active restricted airspace corridors and the altitude layer(s) activated for their use on a daily basis. This would require pilot awareness of the active status of this restricted airspace through the SUAIS and other available sources providing this information. Additionally, USARAK would continue to comply with formal flight safety programs that dictate the aircrew responsibilities and practices aimed at operating all manned and unmanned aircraft safely in existing and proposed new SUA.

Bird/Wildlife-Aircraft Strike Hazards

Since UAV aircraft operate at much lower speeds and has a smaller profile than manned aircraft, the potential for bird-strike damage causing catastrophic damage is extremely low. The potential for any bird/wildlife-aircraft strikes during low-altitude flights in this affected area and the measures already in place for maintaining awareness of any heightened bird activities would help minimize this potential.

3.6.3.3.2 Alternative B

FLIGHT SAFETY

The flight safety considerations for this Alternative for aircraft mishaps, near misses/midair collisions, and bird/wildlife-aircraft strikes would be the same as discussed for Alternative A.

3.6.3.3 No Action Alternative

No UAV activities or protective airspace for their operations would be considered under the No Action Alternative; therefore, there would be no additional impacts or added flight or ground safety concerns associated with this alternative.

3.6.3.4 Mitigations

The preceding analysis of effects on this resource has identified potential adverse impacts to flight safety. The following mitigations are proposed to reduce these impacts.

- Safety – Ground
 - Conduct sandhill crane surveys during spring and fall migration periods.
- Safety – Flight Safety
 - Continue efforts to comply with the respective Service formal flight safety programs, outlined in directives/regulations with supplements, that dictate those aircrew responsibilities and practices aimed at operating all manned and unmanned aircraft safely in existing modified and new SUAs.

3.6.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.6.4.1 Affected Environment

The proposed corridors for UAV training areas would primarily be located in FNSB and Southeast Fairbanks Census Area, though a small portion of the proposed corridors between R-2202 and R-2211 would be located in Denali Borough. The proposed UAV corridors between Fort Wainwright and R-2211 and Fort Wainwright and R-2205 would both be partially within the PM_{2.5} nonattainment and carbon monoxide maintenance areas of FNSB. The remaining corridors would be established in areas within FNSB and in Southeast Fairbanks Census Area that are in attainment of the NAAQS. Table B-12 in Appendix B, Section B.4.3 provides a summary of the estimated 2008 annual emissions for the three affected areas (EPA 2010).

3.6.4.2 Impact Assessment Methodology

All seven of the proposed corridors would have aircraft operations below 3,000 feet that require analysis. This includes the flights that would occur within the Fort Wainwright to R-2205 and Fort Wainwright to R-2211 corridors that would result in an increase in emissions in the nonattainment and maintenance areas of FNSB as a result of the addition of these corridors. There are no construction activities associated with this proposed action.

The analysis followed the methodology described in Appendix B, Section B.4.5. With respect to the EPA's Conformity Rule, for activities that would occur in the nonattainment and/or maintenance areas, the increases in emissions were compared with the applicable conformity *de minimis* thresholds, which are 100 tons per year of PM_{2.5} and carbon monoxide. To be conservative all impacts in the project regions were compared to the conformity *de minimis* thresholds.

PSD CLASS I AREA IMPACT ANALYSIS

The PSD Class I area of concern for this proposed action is Denali National Park, which is approximately 55 miles from the closest proposed UAV corridor. Due to the proximity of the proposed action to a pristine PSD Class I area, this EIS provides a qualitative analysis of the potential for proposed activities to affect visibility within this area.

3.6.4.3 Environmental Consequences

3.6.4.3.1 Alternative A (Preferred Alternative)

CONSTRUCTION

There would be no construction activities associated with Alternative A for the proposed UAV corridors, as these proposed actions would only involve airspace training activities.

OPERATIONS

[Table 3-63](#) presents estimates of the changes in annual operational emissions that would occur from the various proposed UAV corridors that involve aircraft operations under 3,000 feet for Alternative A. Emissions were estimated for all seven of the proposed corridors as they all would allow aircraft operations below 3,000 feet. There are no current activities and thus no baseline emissions within these corridors.

As indicated above, the corridors between Fort Wainwright and R-2205 and Fort Wainwright to R-2211 would be located in an area that is designated as a nonattainment area for PM_{2.5} and as a maintenance area for carbon monoxide. Consequently, the conformity *de minimis* thresholds for each of these pollutants, 100 tons per year, would apply for both areas. To be conservative, the total emissions of PM_{2.5} and carbon monoxide from all seven corridors were compared to the conformity *de minimis* thresholds. Since the project area is in attainment of all other NAAQS, the total emissions for the rest of the pollutants (i.e., NO_x, SO_x, VOCs, and PM₁₀) were compared with their applicable PSD major source thresholds of 250 tons per year.

The data in [Table 3-63](#) show that the increases in PM_{2.5} and carbon monoxide emissions from proposed operations in the seven UAV corridors would not exceed their applicable *de minimis* conformity thresholds of 100 tons per year. Thus, air quality impacts from Alternative A would not be considered significant, and a conformity determination is not necessary. Additionally, the data in [Table 3-63](#) show that the increases in emissions of the other criteria pollutants (NO_x, SO_x, VOCs, and PM₁₀) from Alternative A would not exceed their applicable PSD significance thresholds of 250 tons per year. Details of the operational data and emission factors used to estimate emissions from Alternative A are included in Tables F-12 through F-17 of Appendix F, *Air Quality*, of this EIS. Tables F-18 through F-25 of Appendix F show the change in emissions in the affected airspace from Alternative A.

Combustive emissions from the operation of UAVs in the corridors would contain HAPs that could potentially impact public health. However, as indicated by the low level of criteria pollutant emissions, UAV operation in the corridors as proposed under Alternative A would not be expected to result in significant impacts on public health, as the mobile and intermittent nature of these sources and the wide geographic regions of proposed operations would produce minimal impacts of HAPs in a localized area.

IMPACTS ON DENALI NATIONAL PARK

As the increases in emissions that would result from operations under Alternative A would be minimal, the impacts from proposed emissions under this alternative on air quality-related values in Denali

National Park would be expected to be negligible. In addition, due to the transport distance of at least 55 miles, these emissions would further disperse on transport to this pristine PSD Class I area. As a result, the proposed action would not produce a significant amount of emissions, as defined in section 40 CFR 52.21(b)(23)(iii) of the PSD regulation.

Table 3-63. Annual Operational Emissions Resulting from Implementation of Alternatives A and B

Corridor	Criteria Pollutant Emissions (tons per year)						GHG Emissions (metric tons per year)
	VOCs	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	CO _{2e}
Corridor Between Eielson AFB and R-2211	0.46	0.60	1.27	0.16	0.16	0.16	267.74
Corridor Between Eielson AFB and R-2205	0.30	0.40	0.84	0.10	0.11	0.11	178.49
Corridor Between Allen Army Base and R-2202	0.15	0.20	0.42	0.05	0.05	0.05	89.25
Corridor Between R-2202 and R-2211	0.46	0.60	1.27	0.16	0.16	0.16	267.74
Corridor Between R-2205 and R-2202	0.53	0.70	1.48	0.18	0.19	0.19	312.36
Corridor Between Fort Wainwright and R-2211	0.53	0.70	1.48	0.18	0.19	0.19	312.36
Corridor Between Fort Wainwright and R-2205	0.23	0.30	0.63	0.08	0.08	0.08	133.87
Total Emissions	2.66	3.51	7.39	0.91	0.95	0.94	1,561.81
Applicable Significance Thresholds	250	100	250	250	250	100	N/A

Key: AFB=Air Force Base; CO_{2e}=carbon dioxide equivalent; CH₄=methane; GHG=greenhouse gas; N/A=not applicable; NO_x=nitrogen oxide; PM_{2.5}=particulate matter 2.5 microns or less in diameter; PM₁₀=particulate matter 10 microns or less in diameter; SO₂=sulfur dioxide; VOC=volatile organic compound.

3.6.4.3.2 Alternative B

Operations would be the same in the proposed COA under Alternative B as they would be in the restricted airspace proposed under Alternative A. Thus, the emissions from Alternative B are expected to be the same as the emissions from Alternative A for this action. See Section [3.6.4.3.1](#) for the estimated emissions that would occur from changes in operations due to Alternative B for this proposed action. Impacts to Denali National Park under Alternative B would be similar to those from Alternative A as described in Section [3.6.4.3.1](#).

3.6.4.3.3 No Action Alternative

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated by existing operations in the affected areas. Therefore, the No Action Alternative would not result in any additional air quality impacts.

3.6.4.4 Mitigations

Since the impacts of the two alternatives are expected to be insignificant, no actions to reduce air quality impacts are being proposed.

3.6.5 Physical Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5. The proposed action involves no disturbance of the land surface; therefore, no beneficial or adverse impacts of this action on various physical resources within the study area would occur and it is not further analyzed.

3.6.6 Water Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6. The proposed action involves no disturbance of the land surface; therefore, impacts on water resources would not occur. Therefore, it is not further analyzed.

3.6.7 Hazardous Materials and Waste (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7. The proposed action involves no potential releases of hazardous materials or waste, as this proposed action involves only the establishment of air corridors to provide for the transit of UAVs from their launch sites into existing JPARC airspace (e.g., MOAs, restricted areas) to participate in various training exercises. Therefore, no beneficial or adverse impacts of hazardous materials or waste would occur and it is not further analyzed.

3.6.8 Biological Resources (No Analysis Needed)

This proposed action and its alternatives address UAV flights in restricted area corridors, with altitude minima of 1,200 feet AGL or higher. Such activities would have no substantial impacts on vegetation or wildlife and, therefore, biological resources analysis will not be conducted for any of the airspace links considered under this proposed action.

3.6.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.6.9.1 Affected Environment

The ROI for the UAV Access is portions of TFTA, YTA, and DTA; Viper A and B MOAs; Delta 1, 2, and 3 MOAs; Eielson MOA; Birch MOA; and the land beneath the proposed corridor that would connect Fort Wainwright and R-2211 ([Figure 2-10](#)). The DTA, TFTA, and Eielson MOA portions of the UAV affected environment are the same as described in Section [3.2](#), Realistic Live Ordnance Delivery. The YTA portion of the UAV affected environment is the same as described in Section [3.4](#), DMPTR.

Review of the Alaska Heritage Resource Survey identified approximately two dozen archaeological sites under the restricted airspaces, although not all of the area appears to have been surveyed (USAG-FWA 2012).

BIRCH AND VIPER MOAS

No Federally recognized Alaska Native tribes are under these MOAs. No National Register-listed properties are under these MOAs (NRIS 2011).

DELTA MOA

There are four National Register–listed properties under the Delta MOA, all of which are architectural resources. They are the Big Delta Historic District (also known as Big Delta State Historical Park), Delta Junction; Rika’s Landing Roadhouse (also known as Rika’s Landing Site), Big Delta; Rapids Roadhouse (also known as Black Rapids Roadhouse), Delta; and Sullivan Roadhouse, Delta Junction (NRIS 2011).

Although no traditional cultural properties have been specifically identified underneath the airspace, this does not mean that none are present. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed UAV corridor ROI (see Section [1.6.5](#)).

PROPOSED FORT WAINWRIGHT TO R-2211 CORRIDOR

There are 16 National Register–listed properties under the proposed corridor that would connect Fort Wainwright and R-2211 (NRIS 2011). All of the listed properties are architectural resources in Fairbanks, and consist of individual houses, commercial buildings, civic buildings, a church, and a cemetery (see Table H-3 in Appendix H, *Cultural Resources*).

3.6.9.2 Impact Assessment Methodology

The methodology used for the analysis of potential impacts on cultural resources for the proposed UAV access action is the same as the methodology applied to the analysis of the Fox 3 MOA Expansion/Paxon MOA action (Section [3.1.9.2](#)).

3.6.9.3 Environmental Consequences

3.6.9.3.1 Alternative A (Preferred Alternative)

Alternative A proposes to establish the UAV corridors described in [Table 2-15](#) of restricted or other suitable airspace as determined by the FAA.

No impacts are anticipated to cultural resources from the proposed establishment of the UAV corridors and their training use. As described in Section [3.6.2.3](#) the time-averaged noise levels in the corridors generated by the proposed UAV operations would be approximately 41 dB L_{dnmr} in corridor sectors with a floor altitude of 1,200 AGL and approximately 33 dB L_{dnmr} in corridor sectors with a floor altitude of 3,000 AGL. The corridor sectors with a 1,200-foot altitude are primarily over military land with existing SUAs, and therefore have existing noise from military aircraft. Outside of SUAs, civilian aircraft operations currently expose underlying areas to some degree of noise from individual overflights. UAVs would sound similar (or quieter) than most civilian aircraft. UAV overflight would not have direct or indirect impacts on historic properties beneath the proposed transit corridor.

In compliance with Section 106 of the NHPA, the Army has completed consultation with the Alaska SHPO, who has concurred with the Army’s determination of no adverse effect to historic properties (see in Appendix L). All compliance requirements for consultation with potentially affected Alaska Native tribes, ANCSA corporations, and Tribal government entities has been completed.

No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed establishment of the UAV corridors and their training use. In compliance with DoD

Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed establishment of UAV corridors and their training use (see Section [1.6.5](#)).

3.6.9.3.2 Alternative B

Alternative B proposes to establish the UAV corridors described in [Table 2-15](#) authorized by a COA for transiting the UAVs.

No impacts are anticipated to cultural resources from the proposed establishment of the UAV corridors and their training use. Alternative B would have the same noise effects as Alternative A. UAV overflight would not have direct or indirect impacts on historic properties beneath the propose transit corridors.

No significant impacts on traditional cultural resources or Alaska Native activities are anticipated to result from the proposed establishment of UAV corridors and their training use. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has completed all compliance requirements for government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed establishment of the UAV corridors and their training use (see Section [1.6.5](#)).

3.6.9.3.3 No Action Alternative

Under the No Action Alternative there would be no expansion of restricted areas for the proposed UAV access corridors, no UAV corridors or operations would occur between various elements of SUA in the JPARC and impacts on cultural resources would be as under current existing conditions.

3.6.9.4 Mitigations

No mitigations are identified for this resource at this time.

3.6.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.6.10.1 Affected Environment

LAND STATUS, MANAGEMENT AND USE

Land Status

Land ownership within the UAV proposal area is tabulated in [Table 3-64](#). The ownership patterns in this area are illustrated in [Figure 3-36](#). About half of the 800,300 acres within the footprint of the proposed corridors is Federally owned, and about 46 percent is State-owned. The remaining land (3 percent) is privately held, with only 1 percent in Native ownership.

Table 3-64. Land Status in the Unmanned Aerial Vehicle Proposal Area

Landowner/ Manager	Corridor Between Eielson AFB and R-2211	Corridor Between Eielson AFB and R-2205	Corridor Between Allen Army Airfield and R-2202	Corridor Between R-2202 and R-2211	Corridor Between R-2205 and R-2202	Corridor Between Fort Wainwright and R-2211	Corridor Between Fort Wainwright and R-2205
	A	B	C	D	E	F	G
Federal (% of total)	83%	79%	65%	0%	8%	75%	46%
State (% of total)	16%	20%	29%	100%	89%	11%	35%
Private land (% of total)	1%	1%	7%	0%	3%	14%	18%
Total¹	152,605	65,908	32,971	138,253	182,946	178,414	100,300

¹ Percentages may not total to 100 percent due to rounding of values.

Key: AFB=Air Force Base; UAV=unmanned aerial vehicle.

Federal = Federal land in the action areas including land owned by Department of the Interior and the Department of Defense.

State = State land in the action area including State Trust lands, State patented and State tentatively approved.

Private = Private land includes Native patented, Native Interim Conveyed, State land disposals, and privately owned land.

Source: ADNR 2011-2.

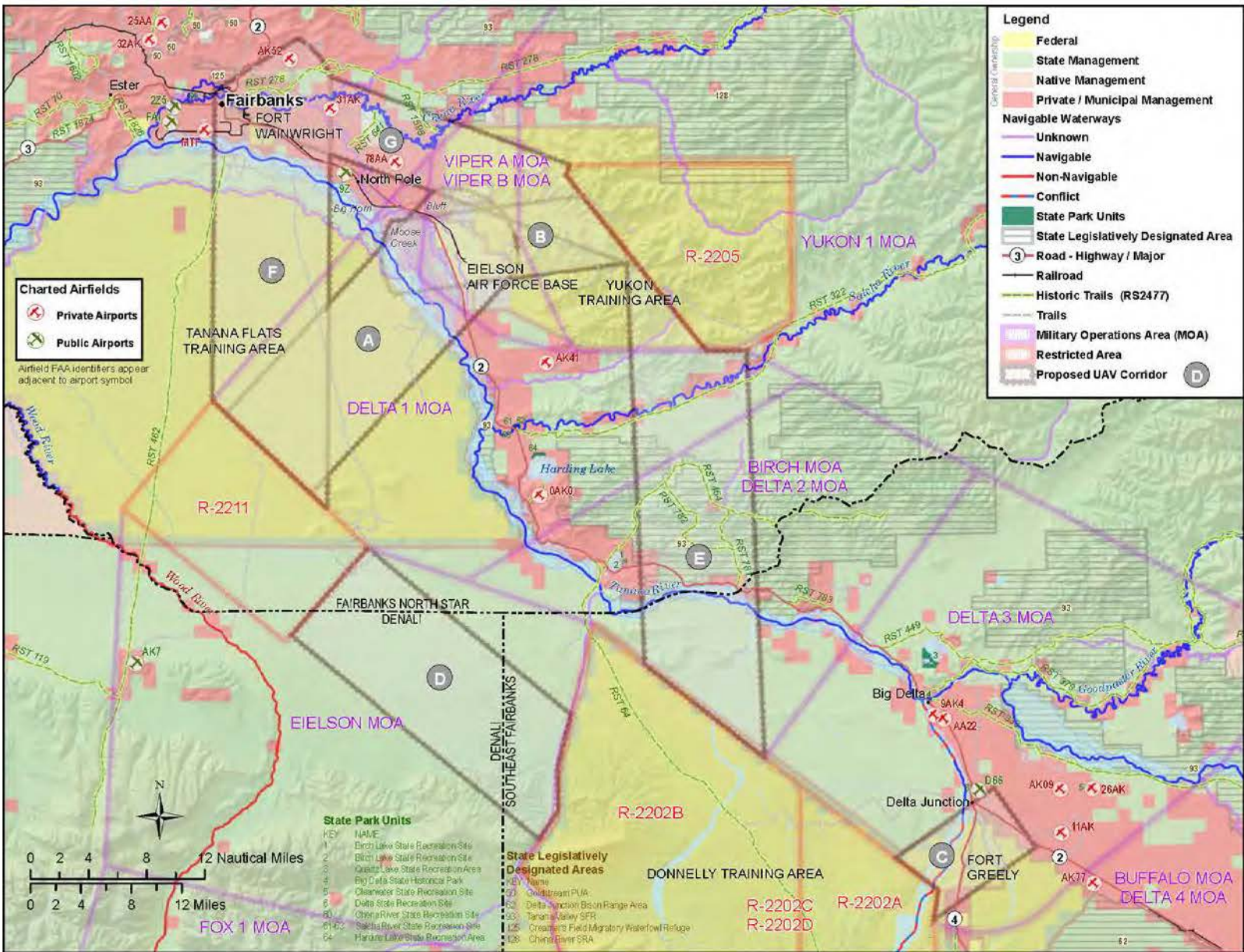


Figure 3-36. Land Status and Special Use Areas in the Unmanned Aerial Vehicle Proposal Area

Source: ADNR 2007, ADNR 2009-1, ADNR 2009-2, ADNR 2009-3, ADNR 2011-2, ADNR 2011-3, ADNR 2011-13

Land Management and Use

The proposal airspace overlies both military and non-military land in the Fairbanks North Star and Delta Junction area. All Federal land in the proposal study area is owned and managed by the DoD. Management and use of these lands are overseen by USAG-FWA in accordance with applicable regulations and plans governing safe, compliant, and sustainable use. Land management planning for non-Federal land is under the State and local jurisdictions. Applicable plans include Eastern Tanana Area Plan (under development), Yukon Tanana Area Plan (ADNR 2009-1), Fairbanks North Star Borough Regional Comprehensive Plan, and Fairbanks North Star Borough Joint Land Use Study (JLUS).

The proposal area is one of the more populated areas of Alaska, including urbanized areas of Fairbanks, North Pole, Delta Junction, and Big Delta. Delta Junction is adjacent to the Fort Greely cantonment area and AAF. A few scattered residences and homesteads lie along the Alaska Highway northwest of the DTA-East. Big Delta is a community just north of Delta Junction. This community, like Delta Junction, is sparsely populated, with only a few nonresidential uses. Most of the land outside the urban and developed areas is open and rural. North Pole is located west of Eielson AFB along Richardson Highway. This incorporated area has a population of about 2,200, but is outside the proposal footprint.

Residential use is also found in locations along the Richardson Highway between Fairbanks and Delta Junction, including Eielson AFB (population 5,400, Federal reservation), Fox (population 300, unincorporated), Harding-Birch Lakes (population 216, unincorporated), Moose Creek (population 542, unincorporated), Salcha (population 854, unincorporated), Pleasant Valley (population about 750, unincorporated), and Two Rivers (population 482, unincorporated). The smaller communities are predominantly residential in character, with a limited mixture of other uses (commercial, light industrial, agriculture).

Special Use Areas. Special use areas in land underlying the UAV proposal areas are listed in [Table 3-65](#), and the locations are shown in [Figure 3-36](#). There are no Federal special use areas in the underlying footprint of the corridors. Descriptions of these areas are provided in Appendix I, *Land Use, Public Access, and Recreation*. In addition, there are 25 FNSB parks within the Alternative A corridor, and five underlying the Alternative B corridor.

Table 3-65. Special Use Areas Unmanned Aerial Vehicle Proposal Area and Surrounding Areas

Special Use Area	Designation	Alignments ¹			
		C	E	F	G
Delta	State Recreational Site	X			
Birch Lake	State Recreation Site		X		
Harding Lake State Recreation Area	State Recreation Area		X		
Creamer’s Field	Migratory Waterfowl Refuge/State Game Refuge			X	X
Tanana Valley	State Forest		X		

¹ C=Allen Army Airfield to R-2202; E=R-2205 to R-2202; F=Fort Wainwright to R-2205; G=Fort Wainwright to R-2205.

Source: ADNR 2011-3.

Resource and Productive Use. Most of the non-military land within the UAV footprints is in the Fairbanks North Star and Delta Junction area. Most of the land is State-owned, within the East Tanana planning area, and managed for its habitat value, with recreation as a secondary use. The proposal footprints include about 8,725 acres of State Mental Health Trust lands, which generally have productive resource potential, with an expectation of revenue-producing value. Federal and State land managers prioritize the use of lands based on resources, attributes, and local values. Habitat values are the predominant land management priority for State lands, with some recreational land. A microwave tower is located on north side of the Richardson Highway under the R-2202–R-2205 corridor. There are six

power plants underlying the corridors including two on Eielson AFB, one on Fort Greely, one on Fort Wainwright and two in Fairbanks (Aurora Energy).

Private and Native Lands. Private parcels and residential lands account for 27,620 acres of the proposal area. The area is essentially rural and remote and has few permanent dwellings. Private lands often have seasonally used hunting cabins. This proposal would not affect uses related to subsurface interests (oil and gas development, mining and mineral activities). Further discussion of Native-owned lands and resources is provided in Section [3.1.13.2](#) of Subsistence.

Locations of Interest

During public scoping for this EIS, members of the public commented on the use of airspace under this proposal. Several locations were identified, and are depicted in Figure A–1 and listed in Table A–7, Appendix A, *Public Scoping Summary*. For specific alignments these include:

- Alignment A: Areas underlying Eielson AFB flight paths, Eielson Farm Road, Moose Creek
- Alignment C: Tyone Lake
- Alignment D: Bonnifield Mining District
- Alignment E: Birch Lake, areas west of Delta Junction, Richardson Highway
- Alignment F: Eureka, Tanana Flats, residential areas in south part of Fairbanks and east of Fort Wainwright, areas designated as urban and preferred residential in the FNSB comprehensive plan
- Alignment G: Urban and residential areas in east part of Fairbanks and North Pole, State Mental Health Trust lands, areas designated as preferred residential in the FNSB comprehensive plan

PUBLIC ACCESS

Land Access

The trails, including RS 2477–designated routes, within the ROI for this proposed action and alternatives are listed in [Table 3-66](#). The locations of these routes are shown on [Figure 3-36](#).

Table 3-66. Public Access Infrastructure Within the Unmanned Aerial Vehicle Proposal Area

Public Access	Designation/RST	Length (miles)
Chena Lakes Trail	RS 2477/ RST 1598	3
Fairbanks – Chena Hot Springs	RS 2477/ RST 278	10
Salcha-Caribou Sled Road	RS 2477/ RST 322	10
Bonnifield Trail	RS 2477/ RST 462	4
Richardson Highway (Birch Lake) – Caribou Creek Trail	RS 2477/ RST 464	13
Chena Lowlands Winter Trail Connections	RS 2477/ RST 641	4
Richardson Telegraph Station – Ridge (also known as Banner C)	RS 2477/ RST 781	7
Redmond Creek – Banner Creek Trail	RS 2477/ RST 782	11

Key: RST=indicates a trail number.

Source: ADNR 2009-2.

Aerial Access

A list of the public and private airports and airstrips in the UAV Proposal area is provided below. These are shown on [Figure 3-36](#).

- Alignment A: Clear Creek Airport
- Alignment F: Clear Creek Airport, Moen’s Airport
- Alignment G: Lakewood Airport, Dalrymple’s airport, Moen’s Ranch Airport

Navigable and Public Waters

This proposal does not affect access to navigable and public waters.

RECREATION

Federal and State special use areas in the UAV proposal area are listed in [Table 3-65](#). The recreational use associated with these areas is described for each area in Appendix I, *Land Use, Public Access, and Recreation*. State lands are primarily managed for habitat value and recreation, and support the general range of recreational uses permitted by ADNR.

3.6.10.2 Impact Assessment Methodology

The general methodology for evaluating land use, public access, and recreation is described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The following are the primary sources of impact of this proposal on land use, including public access and recreation:

- Effects of military overflights on underlying uses and activities (primarily from aircraft noise), as described in Section [3.1.10.2](#)
- Indirect effects of limited civilian air access on land use and recreation, as described in Section [3.1.10.2](#)

3.6.10.3 Environmental Consequences

3.6.10.3.1 Alternative A (Preferred Alternative)

The primary source of impact to surface uses is from noise from UAVs, and perceptions of safety concerns. The projected noise levels for UAV operations in the corridor sectors with a minimum floor altitude of 1,200 feet AGL of 41 dB L_{dnmr} and of 33 dB L_{dnmr} for those with floor altitudes of 3,000 feet is below thresholds of concern for any land use. The corridor sectors with a 1,200-foot altitude (B, C, and G) are primarily over military land with existing SUA, and therefore have existing noise from military aircraft. Outside of SUAs, civilian aircraft operations currently expose underlying areas to some degree of noise from individual overflights. UAVs would sound similar (or quieter) than most civilian aircraft. Overall, there would be no impact to land uses or recreation from noise under any of the proposed corridors.

When planning new corridors for use by military aircraft it would be prudent to avoid locations where people congregate and inhabited areas (including clusters of cabins, churches, schools, and local businesses). [Table 3-67](#) identifies known special areas and inhabited areas underlying or near to each of the proposed corridors. Other locations may warrant avoidance.

Operations of UAVs would not inhibit access to any roads, trails or locations on the ground. Consequently, this proposal would have no effect on public ground access.

UAV operations would not preclude access to airfields and airports underlying proposed corridors or surrounding areas as pilots could fly beneath the corridors. These facilities and the communities and areas they serve would remain accessible.

3.6.10.3.2 Alternative B

Alternative B would have the same noise effects as Alternative A and the various proposed corridors (A through G); therefore, no impacts on land use would result. In addition, no impact to ground access to roads, trails and surface locations would result.

Under this alternative, there would be no officially designated corridors. Therefore, no particular avoidance locations could be specified. Since no particular effects from UAV operations are anticipated, this is not a concern.

3.6.10.3.3 No Action Alternative

Under the No Action Alternative, no UAV corridors or operations would occur between various elements of SUA in the JPARC. No changes or additional impacts affecting land use, public access or recreation would occur.

Table 3-67. Sensitive Locations In and Around the Proposed Unmanned Aerial Vehicle Corridors

Proposed Corridor	Communities (proximity)	Scoping Location of Interest¹	Land Use Characteristics
A Eielson/R-2211	Moose Creek Salcha	Areas underlying Eielson AFB flight paths Eielson Farm Road Moose Creek	Tanana Valley State Forest Eielson AFB power plant Military land
B Eielson/R-2205	Eielson AFB North Pole Moose Creek	Tyone Lake	Eielson AFB power plant Predominantly Military land
C Allen AAF/R-2202	Delta Junction		Military land Fort Greely power plant Delta State Recreation Site
D R-2202/R-2211	None	Bonnifield Mining District	State land – habitat values
E R-2205/R-2202	Harding Lake	Birch Lake Areas west of Delta Junction Richardson Highway corridor	Harding Lake SRC Birch Lake SRC Tanana Valley State Forest
F FWA/R-2211	Fairbanks	Tanana Flats Tanana River Eureka Areas designated as urban and preferred residential in FNSB comprehensive plan	Predominantly Military land Creamers Field Migratory Waterfowl Range Tanana Valley State Forest Urbanized and residential areas in south part of Fairbanks and east of Fort Wainwright
G FWA/R-2205	Pleasant Valley Two Rivers North Pole Fairbanks	State Mental Health Trust lands, areas designated as preferred residential in FNSB comprehensive plan	Military land Creamers Field Migratory Waterfowl Range Urban and residential areas in east part of Fairbanks and North Pole

¹ Underlying or in proximity to the alignment.

Key: AAF=Army Air Field; AFB=Air Force Base; FNSB=Fairbanks North Star Borough; SRC=State Recreation Center; UAV=unmanned aerial vehicle.

3.6.10.4 Mitigations

The preceding analysis of effects on land use, public access, and recreation does not indicate any potential adverse impacts. No mitigations are identified for land use.

3.6.11 Infrastructure and Transportation (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for a general discussion of infrastructure and transportation resources. The UAV proposed action only involves establishing new airspace components and does not intersect with ground-based transportation and utilities resources. As a result, no impacts on this resource are expected and it is not further analyzed.

3.6.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.6.12.1 Affected Environment

The proposed areas for UAV access would include areas under the airspace and nearby communities. The proposed action covers parts of the FNSB, Southeast Fairbanks Census Area, and Denali Borough. Therefore, the ROI for the UAV Access Proposed Alternatives are the portions of the two boroughs and one census area that are underneath the airspace as well as the surrounding communities.

POPULATION

The nearest cities to the proposed action include Fairbanks, the city of North Pole, Big Delta, and Delta Junction. The FNSB had the largest population of the three regions in the ROI, with a total population of 97,581 persons in 2010. The Southeast Fairbanks Census Area had a total of 7,029 persons in the same year, while the Denali Borough had the smallest population, 1,826 persons. GIS-derived data on the total population underneath the airspace for each link or corridor are listed in [Table 3-68](#).

Table 3-68. Population Under the Airspace, 2010

Region	Total Population ¹	Population Under the Airspace ¹						
		Link Between Fort Wainwright and R-2211	Link Between Fort Wainwright and R-2205	Link Between Eielson AFB and R-2211	Link Between R-2202 and R-2211	Corridor Between Eielson AFB and R-2205	Link Between R-2205 and R-2202	Link Between Allen Army Airfield and R-2202
Denali Borough	1,826	N/A	N/A	N/A	2	N/A	N/A	N/A
Fairbanks North Star Borough	97,581	27,988	15,822	4,425	0	3,085	181	N/A
Southeast Fairbanks Census Area	7,029	N/A	N/A	N/A	0	N/A	333	997

¹ GIS-derived calculations.

Key: N/A=Not Applicable.

Source: USCB 2010-1.

HOUSING

During public scoping, a concern was expressed that property values would be impacted by UAV flights. For a detailed description of baseline noise conditions in the area see Section [3.6.2.1](#). Many factors affect the market value of real property. While qualities of the property itself, surrounding properties, and the local real estate market are primary determinants of value, ambient noise levels could also play a role in determining market value. Several studies have analyzed property values as they relate to military and civilian aircraft noise. These studies, however, only consider properties near an airfield, not necessarily properties within an airspace as would be the case with properties within the area of the proposed action. In one study (Fidell et al. 1996), a regression analysis of property values as they relate to aircraft noise at two military installations was conducted. This study found that, while aircraft noise at these installations may have had minor impacts on property values, it was difficult to quantify that impact. Another study (Nelson 2003) analyzed 33 other studies attempting to quantify the impact of noise on property values. The result of the study supports the idea that the potential for an adverse impact on property values as a result of aircraft noise exists, and that the value of a specific property could be reduced between 0.5 and 0.6 percent per decibel when compared with a similar property that is not affected by aircraft noise. Additional data indicate that the reduction in property values as a result of noise would be greater for noise levels above 75 dB DNL, which the EPA considers incompatible with residential use.

ECONOMIC ACTIVITY

See Section [3.2.12.1](#) for a detailed description of economic activity in the ROI.

KEY INDUSTRIES

See Section [3.2.12.1](#) for a detailed description of key industries in the ROI.

3.6.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.6.12.3 Environmental Consequences

3.6.12.3.1 Alternative A (Preferred Alternative)

Under the proposed action, overflight noise levels generated by the proposed UAV operations would approximately be 35 dB L_{dnmr} . It is assumed that any noise impacts (as discussed in Section [3.6.2.3.1](#)) would potentially affect the total population under the airspace as shown above in [Table 3-68](#). Noise levels generated under the proposed action are comparable to the noise levels generated by common civilian aircraft and are below the threshold in which adverse noise effects to human populations are expected. Thus, minimal impacts to the population from noise are anticipated under the proposed action. In addition, the complex nature of property valuation factors makes any estimation of the potential effects of noise on land values highly speculative. Other socioeconomic factors, such as business activity, employment, interest rates, land scarcity (or availability), and the nature of the local housing market are much more likely to affect property values than noise levels generated by UAV operations.

One comment received during public scoping expressed concern that UAV access would affect general aviation, and thereby potentially result in economic impacts to regional business and communities from delays or fuel costs associated with rerouting. Impacts to civil aviation would potentially occur only during times when the corridors are activated. The extent of any impacts would depend on the corridor activation times/altitudes. Potential civil aviation impacts (described in Section [3.6.1.3.2.1](#)) may include slightly increased flight distances and increased flight time when the corridor is active and pilots either elect not to transit the corridors, or if pilots flying to and from private airports or airfields were directed

by ATC to divert their flight routes to avoid the UAV activities. To the extent that they would occur, these potential aviation impacts would result in economic impacts due to additional operating costs (primarily related to increased fuel use) associated with avoiding active airspace, and the costs of any expended efforts in tracking the airspace status through available advisory services.

Such impacts would depend on civil air traffic densities/peak periods and the individual areas and time frames in which the proposed UAV flight activities would occur. The FAA and Air Force would address any impacts and mitigation measures to be taken before implementation of any airspace proposals. This would include advanced coordination between military scheduling agencies and the Air Force, to avoid those time periods and altitudes that are most problematic for the ATC system. In addition, commercial and general aviation routinely experience flight diversions due to weather, airport delays, air traffic congestion, air traffic deconflictions, flight safety, and other such conditions that are unrelated to military airspace use.

The economic impacts of any commercial or other civil aviation aircraft being delayed or diverted to any extent around the proposed corridors when active cannot be quantified due to the many factors to be considered in estimating such impacts. These factors include aircraft type and weight, type and number of engines, an aircraft's phase of flight and altitude at the time of a diversion, air traffic conditions, the additional time/distance incurred by any diversion, etc. Other factors such as maintenance, labor, and aircrew costs would also have to be considered, as applicable, for commercial and general aviation impacts. Economic impacts to general aviation pilots would depend on routes of flight and decisions on whether to delay flight when the corridor is active versus flying through or avoiding the corridors. Fuel consumption rates for the different turboprop and jet aircraft types are identified in technical manuals and other documents that provide operators with a general basis for estimating fuel use for flight planning and other purposes. Fuel use alone is not the only factor to be considered in determining the cost of any flight diversion. Aircraft fuel and operating costs would have to be examined in much more depth and in consideration of many other factors for those aircraft types that could be potentially affected by flight diversions around the airspace.

3.6.12.3.2 Alternative B

Alternative B for the corridors analyzed under Alternative A would be established through a COA. Potential impacts on socioeconomic resources would be similar to those described under Alternative A in Section [3.6.12.3.1](#).

3.6.12.3.3 No Action Alternative

Under the No Action Alternative, no UAV corridors would be established. Therefore, no changes to current existing conditions of socioeconomic resources are anticipated.

3.6.12.4 Mitigations

The preceding analysis of effects has identified potential indirect adverse impacts on civil aviation and economics. Mitigations presented for Airspace Management (Section [3.6.1.4](#)) would benefit the use of airspace for civil aviation and commerce.

3.6.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.6.13.1 Affected Environment

The ROI for this proposed action includes the areas over which the proposed restricted areas would be established and the communities dependent on subsistence resources in the vicinity of these overflow areas. Since the proposed restricted areas are narrow corridors overlying various areas, the ROI for each corridor is described separately.

Proposed Restricted Area Corridors Between Eielson AFB and R-2211, Eielson AFB and R-2205, Fort Wainwright and R-2211, and Fort Wainwright and R-2205. These proposed restricted area corridors are contained within a State nonsubsistence area and a Federal nonrural area described in Section [3.2.13](#) and shown in [Figure 3-23](#) (ADFG 2011-10; USFWS 2010-1). Recreational hunting and fishing would still be permitted and managed as described in Section [3.6.10](#), Land Use.

Proposed Restricted Area Corridor Between Allen Army Airfield and R-2202. Communities within the vicinity of this proposed corridor include Delta Junction, Big Delta, Healy Lake, Dry Creek, and Dot Lake. Delta Junction, Big Delta, and Dry Creek are included in the State nonsubsistence area depicted in [Figure 3-23](#) (ADFG 2011-10). These communities conduct subsistence activities under Federal subsistence regulations within GMU 20D. Within this GMU, rural Alaska residents harvest the following subsistence resources in the stipulated seasons with appropriate permits: black bear, brown bear, caribou, moose, sheep, beaver, coyote, fox, hare, lynx, muskrat, wolverine, grouse, and ptarmigan (USFWS 2010-1). These areas are also included in the Yukon-Northern subsistence area for subsistence fishing under Federal regulations (USFWS 2010-2). The communities of Healy Lake and Dot Lake also participate in subsistence activities in the Federal subsistence areas described above. These communities also participate in subsistence activities and areas regulated by the State. Subsistence resources and estimated harvests under the State regulations for these communities are included in [Table 3-69](#). Information on subsistence harvests on Federal public land near these communities is not available. More-detailed information on species and habitats in the ROI is provided in Section [3.1.8.1](#), Biological Resources.

Proposed Restricted Area Corridor Between R-2202 and R-2211. This proposed restricted area corridor overlies the same area as the proposed RLOD location. Therefore, the affected environment for subsistence resources for this corridor would be the same as that described for the proposed RLOD in Section [3.2.13.1](#). Information on subsistence harvests on Federal public land near these communities is not available. More-detailed information on species and habitats in the ROI is provided in Section [3.6.8](#), Biological Resources.

Proposed Restricted Area Corridor Between R-2205 and R-2202. Communities within 20 NM of this proposed restricted area corridor include Big Delta and Delta Junction. Other communities in the vicinity include Healy Lake and Dry Creek. As described previously, Big Delta, Delta Junction, and Dry Creek are within a State nonsubsistence area (see [Figure 3-23](#)) (ADFG 2011-10). These communities conduct subsistence under Federal regulations applicable to GMU 20 and the Yukon-Northern subsistence area for fishing as described above. Similarly, Healy Lake and Dot Lake communities participate in subsistence activities within the above Federal subsistence areas and in areas regulated by the State. Subsistence resources and estimated harvests under the State regulations for these communities are included in [Table 3-69](#). Information on subsistence harvests on Federal public land near these communities is not available. More-detailed information on species and habitats in the ROI is provided in Section [3.6.8](#), Biological Resources.

Table 3-69. State and Federal Subsistence Resources for the Communities of Healy Lake and Dot Lake

Village	2010 Population	Percent Alaska Native	Percent of Households Participating in Subsistence	State Subsistence			Federal Subsistence
				Most Representative Year	Species	Estimated Harvest (lb)	Hunting and Fishing Subsistence Areas
Dot Lake	62	73.70	100	1987	Salmon (varying species)	1,329	Yukon-Northern Area Subsistence Fishing
					Non-Salmon Fish (varying species)	2,094	
					Large Land Mammals (black bear, caribou, moose)	3,177	Unit 20D-Fairbanks-Central Tanana
					Small Land Mammals (beaver, fox, red fox, hare, lynx, marten, mink, porcupine, weasel, wolverine)	308	
					Birds and Eggs (includes migratory birds)	148	
Vegetation (berries, plants, greens, mushrooms, wood)	499	N/A					
Healy Lake*	13	73.0	28.6	N/A	Birds and Eggs (includes migratory birds)	44	Unit 20D-Fairbanks-Central Tanana

Note: Data are from 2000 survey which is not the most representative year and may not accurately reflect subsistence use and dependency in Healy Lake. Data from the most representative year are not available.

Key: lb=Pound; N/A=Not Applicable.

Source: ADCCED 2011; ADFG 2011-3, 2011-4; USFWS 2010-1, 2010-2.

3.6.13.2 Impact Assessment Methodology

The general methodology for evaluating subsistence is described in Section [3.1.13.2](#).

3.6.13.3 Environmental Consequences

Healy Lake, Dot Lake, and Dry Creek are ranked as high in dependence on subsistence resources. Therefore, analysis of impacts on subsistence from this proposed action focuses on the proposed UAV restricted area corridors between Allen AAF and R-2202, between R-2202 and R-2211, and between R-2205 and R-2202. The remaining proposed corridors, as described in Section [3.6.13.1](#), are within a Federal nonrural area and a State nonsubsistence area. Therefore, no subsistence priority is given to Alaska residents, and management of subsistence resources is not performed. Impacts on recreational activities, including hunting, are described in Section [3.6.10.3](#).

3.6.13.3.1 Alternative A (Preferred Alternative)

Impacts on civil aviation are described in Section [3.6.1](#). As the narrow corridors of restricted airspace would be active for a maximum of 50 days per year, it is not expected that access to subsistence resources by aircraft would be impacted, and thus that harvest of subsistence resources would not be delayed to such a degree that the communities ranked as high in dependence on subsistence resources would be adversely impacted. Additionally, public access to the area beneath the restricted airspace corridors would not be restricted, and individuals would continue to participate in subsistence resources as they are currently practiced. Therefore, no significant impacts to subsistence resources as defined by ANILCA would be expected. USAG-FWA, as part of their ongoing resource management, proposes to continue to consult with subsistence parties and tribes as described in Section [3.6.13.4](#) below. This will benefit subsistence uses in the underlying areas.

3.6.13.3.2 Alternative B

Alternative B for the corridors analyzed under Alternative A would be established through a COA. Potential impacts on subsistence resources would be the same as those described under Alternative A in Section [3.6.13.3.1](#).

3.6.13.3.3 No Action Alternative

Under the No Action Alternative, no new restricted airspace or COA airspace would be established. Subsistence activities would continue as they are currently practiced.

3.6.13.4 Mitigations

The preceding analysis of effects on this resource has identified no adverse impacts on subsistence resources. However, USAG-FWA, as part of their ongoing resource management, proposes to manage potential effects on subsistence resources.

- Continue consultation efforts with subsistence parties to determine current subsistence use levels and areas on USAG-FWA lands as input into scheduling. Continue Tribal consultation efforts with subsistence users about hunting and fishing programs on USAG-FWA land. Continue to use a newsletter to provide information to subsistence users about existing and new military activities and the changes in access for subsistence users. Continue research and cooperative studies with Tribes to address possible effects of Air Force and Army activities on subsistence resources both directly within USAG-FWA installation boundaries and the outlying resources that may also be affected by military activities on DTA-West, DTA-East, YTA, and TFTA.

3.6.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.6.14.1 Affected Environment

The affected environment for the UAV proposal includes two boroughs and one census area in which some portion of the proposal footprint is located. [Table 3-70](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children for areas comprising the proposal area. Note that the table characterizes existing population groups in the affected environment at a general level of detail and does not indicate whether the proposal would create an environmental justice effect.

The average percent minority in the proposal area ranges from 11.6 percent in Denali Borough to 25.9 percent in FNSB, which is lower than the 35.9 percent average for the State of Alaska. The average

percent low-income ranges from 6.1 percent in Denali Borough to 11.6 percent in Southeast Fairbanks Census Area, compared to 9.6 percent for the State of Alaska. The average percent Alaska Native ranges from 3.6 percent in Denali Borough to 11.5 percent in Southeast Fairbanks Census Area, less than the 14.8 percent average for the State. The average percent of children ranges from 22.5 percent in Denali Borough to 26.3 percent in Southeast Fairbanks Census Area, similar to the 26.4 percent average for the State.

3.6.14.2 Impact Assessment Methodology

General Methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#).

Table 3-70. Minority Population, Low-Income Population and Children by Area

Unmanned Aerial Vehicle (UAV)					
Area	Total Population	Percent Low-Income	Percent Minority	Percent Alaska Native	Percent Children
Fairbanks North Star Borough	97,581	8.0	25.9	7.0	25.6
Denali Borough	1,826	6.1	11.6	3.6	22.5
Southeast Fairbanks Census Area	7,029	11.6	21.3	11.5	26.3
State of Alaska	710,231	9.6	35.9	14.8	26.4

Note: Except for the low-income data, which are based on the 2005-2009 American Community Survey conducted by the Census, numbers represent 2010 decennial Census data.

Source: USCB 2010-1, 2010-2.

3.6.14.3 Environmental Consequences

3.6.14.3.1 Alternative A (Preferred Alternative)

For the UAV proposal, restricted area access corridors would be established. Public access to the area beneath the restricted airspace corridors would not be restricted. Based on a review of environmental consequences for other related resources, potentially significant impacts would be reduced through proposed mitigations and other management actions. No disproportionately high and adverse environmental or health effects on minority and low-income populations or children would occur.

3.6.14.3.2 Alternative B

Restricted area corridors would be established through COAs but impacts would be the same as for Alternative A.

3.6.14.3.3 No Action Alternative

No restricted airspace or COA airspace would be established and conditions and practices in the area would continue as they currently exist. There would be no additional disproportionately high and adverse environmental and health effects on minority and low-income populations or children.

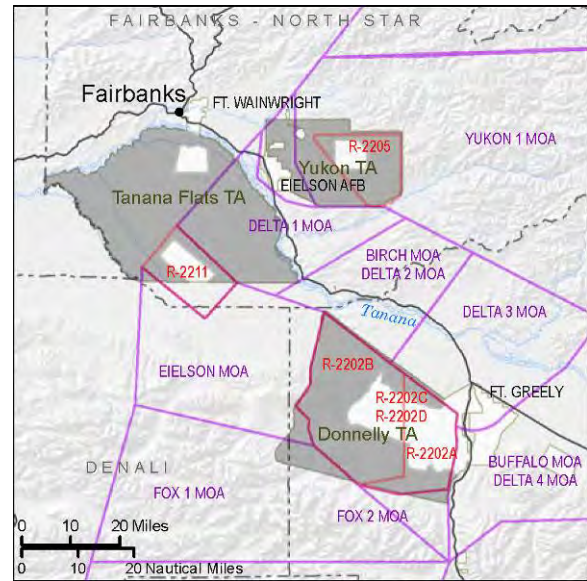
3.6.14.4 Mitigations

No mitigations are identified for this resource.

3.7 ENHANCED ACCESS TO GROUND MANEUVER SPACE (PROGRAMMATIC)

As stated above in Section 3.0, the ROD will not adopt mitigations for the programmatic proposals evaluated in Chapter 3.0. However, it may provide recommendations for future planning that concern siting, criteria, measures, and recommended mitigations that might apply based on those used for similar actions by the various military Services and the analysis in the EIS. These recommendations are included in the impact assessments of the various resources for the programmatic proposals and may be considered and applied in future planning for these actions.

This proposal would provide year-round accessibility, internal circulation, and enhanced maneuver space to support brigade-level events with battalion-size training occurring in TFTA, YTA, and DTA. Brigade units would interact with Joint Interagency, Intergovernmental, and Multinational (JIIM) components in order to provide a realistic training environment. The training frequency at this time is planned to support seven combat maneuver battalions that would train within TFTA, DTA, and YTA. Each battalion would train for a 10-to-14 day event at least once per year per battalion. Specific alternatives for direct access to DTA, YTA, and TFTA have not yet been developed to the point where a specific decision can be made. As such, year-round access, internal circulation, integration with proposed ISBs, and expanded maneuver space in DTA, YTA, and TFTA will be treated in a programmatic manner in this EIS.



The Enhanced Ground Maneuver proposal has a composite footprint of just over 1.2 million acres (1,892 square miles), entirely on military land. (Refer to the gray-shaded area in the map to the right.) The proposal is entirely ground-based, and in itself, does not involve hazardous operations requiring changes to, or use of, airspace. It involves construction of training roads, trails, and open maneuver areas. Based on this, the potential for significant impacts on airspace management and flight safety is expected to be low. In response to future mission change and force structure modernization, it is likely that the Army and other services currently training in Alaska will be required to adapt their training and testing on JPARC lands and ranges. The Army will evaluate any additional modernization and enhancement of JPARC capabilities based on future service requirements in accordance with NEPA.

3.7.1 Airspace Management and Use (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1. The activities proposed for the ground maneuver space access would not affect the management, use, or structure of the MOAs overlying different portions of the maneuver areas. Therefore, it is not further analyzed for this proposal.

3.7.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.7.2.1 Affected Environment

The affected environment includes all lands within DTA, TFTA, and YTA that are not designated dudged munitions impact areas. These areas are affected by noise generated during military training, including weapons firing and detonation, ground vehicle maneuvers, and aircraft training activities.

3.7.2.2 Impact Assessment Methodology

The same methods used to assess impacts associated with the TFTA access road were used to assess the proposed EGMS.

3.7.2.3 Environmental Consequences

3.7.2.3.1 Proposed Action

Noise impacts would be similar to impacts associated with the proposed construction and use of the TFTA access road (see Section [3.8.2.3](#)). Ground unit maneuvering within TFTA would generate temporary disturbances among wildlife. However, ground vehicle noise levels are less intense than noise levels generated by aircraft and munitions usage in the same areas and are not considered in detail in this analysis (see Appendix E, *Noise*, Table E-2 and Table E-4).

3.7.2.3.2 No Action

Under the No Action Alternative, no additional roads or circulation routes would be constructed, and ground maneuver operations would continue to occur as they do under baseline conditions.

3.7.2.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.7.3 Safety

FLIGHT SAFETY

This proposal does not include any airspace actions or flight activities beyond those that currently exist within the surrounding airspace environment; therefore, there would not be any additional flight safety concerns associated with the proposed actions.

3.7.3.1 Affected Environment

FLIGHT SAFETY

The activities identified for this proposal do not include any changes to the use or structure of the airspace associated with the ground maneuvering space. The general flight safety considerations for the airspace overlying portions of this land area are as discussed in Section [3.1.3](#).

GROUND SAFETY

For this alternative, the environment affected by activities involved in range safety and control, UXO and munitions safety, public access control, and fire and emergency response would not differ from that previously described for RLOD Alternative A in Section [3.2.3.1](#).

3.7.3.2 Impact Assessment Methodology

FLIGHT SAFETY

The assessment methodology for flight safety impacts addressed in Section [3.1.3.2](#) was used, as appropriate, for the airspace activities conducted in the areas overlying this maneuver area as discussed in Section [3.1.3](#).

GROUND SAFETY

Impact assessment methodology is the same as in Section [3.2.3.2](#).

3.7.3.3 Environmental Consequences

3.7.3.3.1 Proposed Action

GROUND SAFETY

Range Safety and Control – There are no environmental impacts associated with range safety and control for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Unexploded Ordnance and Munitions Safety – There are no environmental impacts associated with UXO and munitions safety for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Public Access Control – There are no environmental impacts associated with public access control for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Fire and Emergency Response – There are no environmental impacts associated with fire and emergency response for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

3.7.3.3.2 No Action

Under the No Action Alternative, the new access would not be constructed, and therefore, emergency response would continue as under existing conditions. Improved emergency response capabilities would not occur. No other impacts on public health and safety would occur under the No Action Alternative.

3.7.3.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.7.4 Air Quality

Reference also Appendix B, Definition of the Resources and Regulatory Settings, Section B.4.

3.7.4.1 Affected Environment

The proposed enhancements to ground maneuver space would occur primarily in FNSB and Southeast Fairbanks Census Area, and a small portion of these activities would occur in Denali Borough. Southeast Fairbanks Census Area and Denali Borough are both in attainment of all NAAQS. None of the proposed locations for access enhancement lie within the PM_{2.5} nonattainment area or the carbon monoxide maintenance area of FNSB. Table B-12 in Appendix B, Section B.4.3 provides a summary of the estimated 2008 annual emissions for the three affected areas.

3.7.4.2 Impact Assessment Methodology

Currently, this action is in its developmental stages and sufficient data is not available to analyze air quality impacts. Once sufficient data is available, the air quality analysis will include an estimation of the construction emissions and the magnitude of changes in operational emissions that would occur from the proposed EGMS, in accordance with the methodology described in Appendix B, Section B.4.5. Since all of the affected project region is in attainment of all NAAQS, the analysis will use the PSD new major source threshold of 250 tons per year for each pollutant as an indicator of significance or nonsignificance of projected air quality impacts.

PSD CLASS I AREA IMPACT ANALYSIS

The PSD Class I area of concern for this proposed action is Denali National Park, which is approximately 40 miles from the closest proposed enhancement area under this action. Due to the proximity of the proposed action to a pristine PSD Class I area, the potential for proposed activities to affect visibility within this area will need to be analyzed.

3.7.4.3 Environmental Consequences

3.7.4.3.1 Proposed Action

Air quality impacts of construction activities related to the proposed EGMS action would occur from (1) combustive emissions due to the use of fossil-fuel-powered equipment, and (2) fugitive dust emissions (PM₁₀ and PM_{2.5}) due to the operation of equipment on exposed soil. Increases in emissions due to changes in operations for the EGMS would occur primarily from combustive emissions due to the use of fossil-fuel-powered equipment.

Information needed to calculate air emissions resulting from the proposed construction activities associated with the ground maneuver space action includes the following:

- The type, horsepower, and daily and annual usage rates of fossil-fuel-powered equipment used to construct the roads associated with the proposed action
- The usage of water trucks during construction for dust control
- The surface type, length, and width of the proposed roads
- The distance that the trucks would travel to the materials and dumping sites

Operational information needed to calculate the air emissions resulting from increased activities associated with the EGMS action include:

- The type, horsepower, and daily and annual usage rates of fossil-fuel-powered equipment associated with increased training activities related to the proposed action

- Information regarding any increase in munitions expenditures associated with the proposed action, including the types of munitions, and the baseline and expected utilization of each munition type

The emissions factors needed to derive construction source emission rates are found in *Compilation of Air Pollution Emission Factors* (EPA 1995) and emissions inventory data produced by the mathematical models: OFFROAD2007 for off-road construction equipment (Air Resources Board [ARB] 2006-1) and the EMFAC2007 Model for on-road vehicles (ARB 2006-2).

Emission reduction strategies that can be incorporated during construction activities related to the EGMS action include the following:

- Use water trucks to keep areas of vehicle movement damp enough to minimize the generation of fugitive dust.
- Minimize the amount of disturbed ground area at a given time.
- Minimize ground-disturbing activities in proximity to the construction area boundary.
- Discontinue proposed ground-disturbing activities within 3 miles upwind of the construction area boundary when winds exceed 25 miles per hour or when visible dust plumes emanate from the site and then stabilize all disturbed areas with water application.
- Designate personnel to monitor the dust control program and to increase dust suppression measures (e.g., watering), as necessary, to minimize the generation of dust.

3.7.4.3.2 No Action

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at YTA, TFTA, and DTA. Therefore, the No Action Alternative would not result in any new air quality impacts.

3.7.4.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals for EGMS are provided above in Section [3.7.4.3.1](#).

3.7.5 Physical Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5.

3.7.5.1 Affected Environment

TOPOGRAPHY

TFTA is located within a broad depression known as the Tanana-Kuskokwim Lowland and is bordered to the south by the Alaska Range. Topography on TFTA slopes upward to the southeast, with elevations increasing from just under 400 feet MSL in the northwestern area of the installation, closest to the Tanana River, to just over 1,100 feet MSL on the southern boundary. Topographic features of note on TFTA include the Clear Creek Butte and Wood River Buttes, each at just under 1,000 feet in elevation. The highest points on TFTA are found on several small unnamed peaks at just over 1,400 feet in the area surrounding Blair Lakes.

YTA is located in the Yukon-Tanana Uplands, and is largely mountainous, with elevations rising 500 to 1,500 feet above the valley floors. Rounded ridges (elevations from 3,000 to 5,000 feet) with gentle side slopes and valley floors from 0.25 to 0.50 miles wide are common features. Low elevations are seen in the western portions of the installation closest to the course of the Tanana River and in the numerous river valleys spread throughout YTA.

DTA is located in the northern foothills of the Alaska Range to the south and on alluvial plains just north of the foothills. Much of DTA area is level or gently sloping; elevations range from 1,200 to 1,600 feet. In the southern portion of DTA, elevations range from 2,000 to 4,500 feet, where flat-topped, east-trending ridges are found. The highest elevations in DTA are located in the southwestern areas, where elevations range from 4,000 to 6,200 feet. Prominent topographic features in DTA include Molybdenum Ridge (5,993 feet) and Donnelly Dome (3,910 feet). The Delta River flows through the eastern portion of DTA, and the Little Delta River forms the western boundary.

GEOLOGIC HAZARDS

TFTA, YTA, and DTA have each been affected in the past by earthquakes generated by the Denali Fault and are in a region classified by the U.S. Geological Survey (USGS) as moderate to high for earthquake hazard potential (USGS 2002). Seismic activity near TFTA is associated with an area known as the Fairbanks seismic zone, which experiences an average of five to six earthquakes per year, and micro-earthquakes are frequently felt. YTA and the northwest corner of DTA are located in the Salcha seismic zone, an area characterized by a northeast-trending cluster of earthquake epicenters about 200 miles wide and 30 miles long, extending from Fairbanks to Prince William Sound to the south (USARAK 2004-1).

A magnitude 7.9 earthquake in November 2002 (the largest recorded in the region, ground movement was being felt from Fairbanks to the Kenai Peninsula south of Anchorage), with an epicenter approximately 90 miles south of Fairbanks, resulted in minor to moderate damage to roads, runways, and some buildings in each training area. Portions of the Richardson Highway were damaged, and support structures for the Trans-Alaska pipeline were damaged, though the pipeline itself remained intact (USARAK 2004-1).

In addition to the major Denali Fault, several smaller, localized faults are close to TFTA and YTA, including the Mystic Mountain and Healy Faults. DTA lies to the west of the Granite Mountain, Donnelly Dome, Mt Pillsbury, and Canteen Faults (GSA 1993).

SOILS

In general, soils on TFTA were formed from various unconsolidated materials, with deposits varying from coarse gravel nearest the Alaska Range at the heads of alluvial fans to sand and silt at the fan bases in northern portions of the training area. Soils containing coarser sediments on the upper fans are generally more well-drained than the fine-grained sediments found in lower areas of alluvial fans (USARAK 2004-1). In general, soils on TFTA are extremely acidic to neutral, have moderate to high potential for frost action, and present limitations to development, due to depth to permafrost, depth to the high water table, and high organic matter content (USDA 2005).

On the southern slopes of mountainous areas of YTA, soils generally consist of well-drained silt loams varying from shallow gravelly silt near the tops of ridges, to silt loams at mid-slope areas, to moist silt loams in areas of lower slope. Depressional areas and the bottoms of drainages usually contain shallow gravelly silt loam covered by a thick layer of peat. North-facing slopes usually contain shallow gravelly silt loams overlain with thick peat (USARAK 2004-1).

Soils in the northern, west-central, and eastern portions of DTA-West are categorized as silt loam associations and soils in DTA-East are categorized as shallow silt loam, over gravelly sand. Soils in river floodplains are alternating layers of sand, silt loam, and gravelly sand. Soils in boggy areas are very

organic, wet, and close to the high water table. Upland soils are moist and loamy, as compared with mountainous soils, which are rocky, nonvegetated, and steep. Soils in lowlands generally have low wind and water erosion potential; soils at foothills and higher elevations have greater erosion potential (USARAK 2004-1). In general, soils in DTA are extremely to moderately acidic, have moderate to high potential for frost action, and present limitations to development due to depth to permafrost, depth to the high water table, and high organic matter content (USDA 2005).

PERMAFROST

Much of the land area on TFTA is underlain by continuous or discontinuous layers of permafrost. Permafrost is not found in areas closest to and under rivers and lakes, but is commonly found where there is no surface water or actively circulating groundwater. The active permafrost layer can be found at only 1 foot below the surface in some places, but can extend to 23 to 50 feet in others. The presence of permafrost is often a function of vegetative cover, topography, elevation, and local soil type. TFTA is experiencing widespread permafrost degradation (estimated at over 40 percent of the total land area), which is expressed on the surface as various thermokarst features (USARAK 2004-1).

YTA is located in a region of discontinuous permafrost; permafrost is continuous and thickest in valley bottoms and on lower mountain slopes. As a large portion of YTA is rugged and mountainous, much of the area is classified as unfrozen (less than 10 percent permafrost). Permafrost can extend to the summits of north-facing slopes, but is absent on hilltops and most south-facing slopes. Sediments under the floodplains of the Tanana and Chena Rivers can be frozen to depths of up to 265 feet, but unfrozen zones can be found beneath most deep lakes and medium to large rivers (USACE 1999; USARAK 2004-1).

Permafrost conditions in DTA are irregular, particularly in areas where there are rapid elevation transitions. Permafrost tends to occur in DTA on north-facing slopes and valley bottoms, but is absent on south-facing slopes, in coarse-grained sediments, and in areas of groundwater movement (USACE 2001). A large portion of DTA contains discontinuous permafrost, but areas below existing and abandoned river channels, lakes, wetlands, and other low-lying areas are likely free of permafrost. Isolated areas of permafrost can be found in sandy gravels from 2 to 40 feet below ground. Degradation of permafrost is not widespread on DTA; areas of such degradation are generally expressed on the surface by thaw ponds. Permafrost underlying gravelly soils is less likely to be susceptible to permafrost degradation, whereas areas dominated by loess or other silty sediments would be more vulnerable (USARAK 2004-1).

3.7.5.2 Impact Assessment Methodology

SOILS AND PERMAFROST

The impact assessment methodology for soils and permafrost would be the same as that described in Section [3.2.5.2](#).

GEOHAZARDS

Impacts associated with geologic hazards, including faulting, earthquakes, and permafrost, have been evaluated with respect to the potential for damage to proposed structures and related infrastructure. Impacts associated with volcanic activity has been generally evaluated with respect to potential injury or loss of life.

3.7.5.3 Environmental Consequences

This section analyzes the potential impacts related to physical resources (including soils, permafrost, and seismicity) associated with the proposed action. Baseline conditions in areas potentially affected by the proposed action were addressed in Section [3.7.5.1](#).

3.7.5.3.1 Proposed Action

The proposed action includes the enhancement of maneuver areas (including the construction of associated maneuver area infrastructure) to allow year-round accessibility, improved internal circulation, and maneuver space necessary to support at least battalion-size training events in each training area. Brigade-level events conducted by the SBCT, Airborne Brigade Combat Team (ABCT), Combat Aviation Brigade, and Engineer Brigade would conduct battalion operations in each training area while interacting with JIIM components. The proposed new ground maneuver areas would be located within a supportable distance of existing and proposed ISBs (see Section [3.10.5](#)). The proposed ground maneuver area could be used to train a Stryker company in accessible off-road areas outside existing hazard footprints. The location of the enhanced ground maneuver space and necessary infrastructure construction/improvement are to be determined.

Since soil conditions vary greatly between and within DTA, YTA, and TFTA, potential impacts associated with the construction of access roads or infrastructure would be dependent upon localized soil characteristics in areas of disturbance. Impacts from construction activities would be considered direct and short-term. The primary impact associated with roadway/infrastructure construction would be increased potential for erosion during preliminary grading activities, while soil is exposed, before application of roadbed and roadway material, as well as from the actions of construction equipment. However, the proposed action would utilize existing roads where possible and thereby minimize impacts on soils.

Potential impacts on permafrost during construction of access roads/infrastructure would result from removal of upper soil layers or vegetative mat, leading to a possibility of permafrost degradation and subsequent creation of thermokarst features (land surfaces characterized by very irregular surfaces of marshy hollows and small hummocks). As with soils, the extent and location of permafrost beneath the surface at DTA, YTA, and TFTA is variable and thus the extent of impacts on permafrost would be dependent upon permafrost extent at site of access road (or infrastructure component) construction. Permafrost, however, is present in all three areas to some extent. General permafrost conditions and trends for each training area are described in Section [3.7.5.1](#).

Training activities would result in the potential for significant adverse impacts, depending upon where and upon what soil types training occurs; however, the majority of terrain on all three training areas are considered off limits in warmer months for certain types of training activities (i.e., Stryker maneuvering) due largely to lack of accessibility (USARAK 2004-1). This lack of accessibility would greatly reduce the possibility of significant impacts on soils. Primary impacts on soils would result from ground maneuver activities and use of Stryker vehicles in off-road capacity. The type and severity of impacts associated with such uses would be dependent upon soil characteristics and type in the maneuver space.

The 2004 *USARAK Transformation EIS* assessed the use of Stryker vehicles on DTA, TFTA, and YTA. Prior to completion of that document, Stryker maneuver training had not occurred in Alaska. The EIS evaluated the ability of the Stryker to maneuver off-road and predicted terrain impacts, assessing both the mobility and maneuverability of vehicles and the trafficability of soils. For purposes of evaluation, mobility is defined as the ability of a vehicle to cross terrain, taking into consideration vehicle type, soil trafficability, obstacles in terrain, and access. Maneuverability indicates vehicle mobility on applicable/accessible land. Trafficability is defined as the ability of soils to physically support the weight of military vehicles. Areas considered non-trafficable include year-round wetlands and areas with slopes greater than 30 percent (USARAK 2004-1).

The effects of vehicle traffic on soils are dependent upon vehicle characteristics and local site conditions (Ayers 1994). Shape and size of contact area, surface pressure, total vehicle weight, track/wheel design, vehicle speed, turning radius, and driving patterns are vehicle characteristics that can determine the

potential extent of soil damage. Soil characteristics that determine the extent and type of damage include soil type, moisture content, climate conditions, vegetation types, and soil strength (USACE 2000). Soils most susceptible to damage from training activities (especially off-road use) include fine-grained, wet or hydric soils in low lying areas, soils with high erosion potential, and soils with fine sandy or silty loam surface layers. General soil conditions and trends for each training area described in Section [3.7.5.1](#).

In general, soil disturbances from military vehicles result in environmental impacts by way of increased erosion and decreased plant/vegetation development. Consequences of vehicle traffic can include reduced soil strength and structure, formation of ruts, soil puddling, displaced surface layers, increased soil density, decreased pore space, restricted water movement, and physical damage to root systems (USACE 2000). One potential impact from the activities of the SBCT and other vehicles associated with the proposed action is the rutting of soil resulting from repeated passes over a given terrain. Rutting is defined as the soil surface surrounding a vehicle track that has been displaced, compacted, or lost strength, due to reshaping caused by traffic. Rutting is associated with vegetation loss, soil exposure, increased erosion, soil compaction, and root damage (USACE 2000).

For Stryker maneuvers on unfrozen soils, no beneficial or adverse impacts are anticipated in areas where soil strength is high (on well-drained, gravelly or sandy soils), potentially adverse, but not significant impacts are expected on soils with moderate soil strength (wet or poorly-drained sand or silty soils), and significant impacts would be associated with soils having low soil strength (saturated or waterlogged sands, silts, and organic soils). On soils with very low strength, potential rut depths can range from 6 to 18 inches (USARAK 2004-1). Vehicles such as the Stryker are more limited in unfrozen soil conditions (i.e., summer months) in comparison to other vehicles used for maneuvers and other purposes on USAG-FWA, due largely to soil strength and slope conditions.

Terrain that is normally untrafficable (“No Go”) in warmer months often requires a substantial layer of frost (not permafrost) before vehicle operations are permissible. One study found that on a soil type vulnerable to damage (soft peat), a frost depth of 28.3 inches is required to support a Stryker vehicle under dry conditions and 18.1 inches under wet conditions. For comparison, a frost depth of 52.0 inches would be needed to support an M1A2 Abrams under dry conditions (33.2 under wet conditions) and 12.2 inches of frost depth for an HMMWV (7.8 under wet conditions) (USARAK 2004-1).

On DTA, all areas west of the Delta River are considered a “No Go” for Stryker maneuvering in summer months and much of the area east of the river is either “No Go” or “Slow Go.” All of TFTA is categorized as “No Go” during the summer months, but is considered fully accessible for Stryker training in winter months. Much of YTA is rated either “No Go” or “Slow Go” for year-round training, due largely to slope considerations; however, eastern portions of YTA are considered acceptable for year-round maneuverability (USARAK 2004-1).

There is the potential for significant impacts on permafrost from ground maneuver training and off-road Stryker use, as permafrost is particularly vulnerable to the effects of ground disturbance. With removal of overlying insulating vegetative mat, permafrost can begin to melt, resulting in thermokarst features, land subsidence, and the formation of standing water/ponds, leading to areas largely impassible to vehicle traffic and limited usefulness for other training activities, including construction of infrastructure.

TFTA, YTA, and DTA are located within an area classified by the USGS as moderate to high for earthquake hazard potential. Effects from the 7.9 earthquake in November 2002 were felt on TFTA, YTA, and DTA; structures and infrastructure (including roads) on TFTA incurred some damage as a result of ground acceleration and other effects associated with the earthquake.

3.7.5.3.1.1 Site Selection Criteria and Best Management Practices

Training activities and roadway/infrastructure construction would adhere to all applicable DoD and Army guidelines for protection of soils, prevention of soil erosion, and prevention of permafrost degradation. See Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, for information on how the Army manages natural resources on Army lands in Alaska and ongoing measures that would apply to the proposed action.

Pre-planning for siting of new infrastructure or new activities at ranges or on training areas requires coordination between the (Air Force/proponent/user) and the USARAK IRO. The USARAK IRO and USAG-FWA Environmental Division review the range user's proposal and work directly with the (Air Force/proponent/user) to select a location that is suitable for the proposed purpose, while also considering a range of environmental, operations, and land use constraints. These considerations as well as information from the ITAM program would factor into site selection and specific restrictions or BMPs that the proponent must agree to follow. This includes periodic or post-activity assessments, restorative actions, and site clean-up.

3.7.5.3.2 No Action

Under the No Action Alternative, year-round maneuver space on DTA, YTA, and TFTA would not be created or operated and conditions would remain as described in Section [3.7.5.1](#).

3.7.5.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals for EGMS are provided above in Section [3.7.5.3.1](#).

3.7.6 Water Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6.

3.7.6.1 Affected Environment

The affected environment for EGMS would be limited to TFTA, YTA, and DTA. This section provides descriptions of the water quality and quantity, floodplains, and wetlands within TFTA, YTA, and DTA.

Since 2000, USAG-FWA has managed the wetlands within TFTA, YTA, DTA by limiting military maneuvering or other activities to upland and certain wetland areas based on a potential for environmental damage (USARAK 2004-1). From 2000 to 2005, the wetlands are managed under a five-year permit with the USACE where USAG-FWA could not damage more than 40 acres (16.2 hectares) of wetland per year. Restoration of all damage to wetlands was mandatory (USARAK 2004-1). Environmental overlays were developed which restricted activities based on the presence of wetlands. The use of the overlays will continue under any new permit. For management purposes, USAG-FWA classifies wetlands as either "higher function" or "other," a distinction not mandated by Federal or State policy. "Higher function" wetlands include riverine areas, permanent emergent areas, semipermanent emergent areas, riparian areas, and other sensitive wildlife habitats that lie within any wetland area; the "other" category includes all other wetland types.

TANANA FLATS TRAINING AREA

TFTA is within the Tanana River watershed, and the Tanana River constitutes the northern and eastern boundaries of TFTA. Wood River, Crooked Creek, Willow Creek, Clear Creek, Dry Creek, McDonald

Creek, and Bear Creek drain TFTA, and all of them drain into the Tanana River directly or by way of Salchaket Slough. Numerous small lakes and ponds covering 2,178 acres (881 hectares) exist on TFTA. The only significant bodies of open standing water on Tanana Flats are the Blair Lakes, a group of lakes near the southern boundary of the training area. Due to TFTA's remote location, surface water quality data are not collected for much of the area. Water quality of the nearby Wood River downstream and the Tanana River upstream of TFTA meet all applicable water quality standards (USARAK 2004-1). TFTA is underlain by an alluvial aquifer fed primarily by percolation from source waters along the Alaska Range. Fort Wainwright draws its water supply from groundwater in this Tanana Basin alluvium. Groundwater flows from wells can reach 3,000 gallons (11,356 liters) per minute. Groundwater in the Fort Wainwright area contains high levels of metals, especially iron. Elevated arsenic levels are prevalent in the upland areas. These are naturally occurring levels and are not related to human-caused pollution. Industrial activity on Main Post at Fort Wainwright, in particular activity associated with underground storage tanks (UST), chemical storage facilities, and chemical dump sites, has caused groundwater pollution. The areas of these facilities have been identified and are monitored intensively. Pollution at the sites is localized, and monitoring indicates no deep groundwater pollution (USARAK 2004-1).

Floodplain maps are not available for the waterways in TFTA. The USGS maintains a gaging station on the Tanana River near Fairbanks. As this river is glacier-fed, high flows usually occur in July, at the peak of glacial melt, and average 52,900 cubic feet per second. The highest recorded flow on the Tanana River was on August 16, 1967, at 125,000 cubic feet per second (USGS 2011).

Wetlands constitute approximately 74 percent (483,500 acres [195,668 hectares]) of TFTA. Most are classified as Lowland Wet Needleleaf Forest and Lowland Forest and Scrub Thermokarst Complexes (USARAK 2004-1). Also present are thermokarstic complexes, which consist of marshy hollows and small hummocks that form as permafrost thaws.

YUKON TRAINING AREA

Northern and northeastern portions of YTA are drained by the Chena River and its tributaries: the South Fork Chena River, Hunts Creek, and Horner Creek. The southern portion of YTA is drained by Ninetyeight Creek, a tributary of the Salcha and Little Salcha Rivers. Streams draining the western portion of YTA flow directly or by way of Piledriver Slough into the Tanana River. All streams originating on YTA have their headwaters in the Yukon-Tanana Uplands, in rolling, glacier-free terrain. Many small lakes and wetlands lie in the northwestern portion of YTA. The largest of these include Horseshoe and Machu Lakes, which cover approximately 498 acres (202 hectares). Due to lack of human development and activity on the training area, surface waters on YTA are relatively pristine. All of YTA's surface waters have low rates of primary and secondary productivity and high water quality. Groundwater in the hills and uplands of YTA is limited; however, the floodplain deposits in the creek and river valleys have large quantities of groundwater. Although there are no groundwater monitoring wells in the area, groundwater in nearby wells at Fort Wainwright have high concentrations of metals. Iron concentrations exceed secondary water quality standards, and some wells in the uplands also have higher concentrations of arsenic from naturally occurring sources. Groundwater wells downstream of YTA along the Chena River provide the water supply for the city of Fairbanks.

Floodplain mapping is not available for the waterways in YTA. The USGS maintains a gaging station on the Chena River 11 miles (17.7 km) from its confluence with the Tanana River. The high flows usually occur in May, when flows average 3,500 cubic feet per second. However, the highest recorded peak flow occurred on August 16, 1967, at 74,400 cubic feet per second (USGS 2011).

Approximately 17 percent (42,600 acres [17,240 hectares]) of YTA is classified as wetlands. The prevalent wetland types include Shrub Wetlands, Lowland Wet Needleleaf Forest, and Riverine and

Lacustrine Complexes. Most middle and lower portions of north-facing slopes in the wetland/upland complex of YTA are probably wetlands (USARAK 2004-1).

DONNELLY TRAINING AREA

DTA lies entirely within the Tanana River drainage basin. A majority of the larger streams flowing through the area, such as the Delta River and Jarvis Creek, are glacier-fed. Principal glaciers lying along or south of DTA's southern boundary include Canwell, Castner, and Black Rapids, which drain into the Delta River. Jarvis Creek is fed by meltwater from glaciers on Mount Silvertip. The Delta River and Jarvis Creek have broad, braided channels flowing over permeable alluvial fan deposits. Large quantities of streamflow infiltrate through the sediments into the groundwater table, resulting in decreasing stream flow in a downstream direction. The State of Alaska has designated the streams on DTA for all use classes. Lakes and ponds are abundant, covering 8,752 acres (3.54 hectares) of DTA. ADFG manages 16 lakes for recreational fishing. Bolio Lake is the largest of these at approximately 2.5 miles (4.0 km) in length. Surface water quality values on DTA meet the State's primary drinking water standards. However, aluminum, iron, and manganese concentrations are higher than the State's secondary standards. High iron concentrations are typical in streams that drain wetland areas high in organic matter (USARAK 2004-1). Regions of DTA that have the greatest amount of groundwater are the floodplain deposits along the Little Delta River, Delta Creek, and the broad alluvial fan extending along the north flanks of the Alaska Range. Groundwater in DTA is within State standards for water quality. The Fort Greely water supply comes from a single well in Mainside near the Delta River.

Floodplain mapping in DTA is limited to Jarvis Creek. Since most of the waterways in DTA are glacier-fed, peak flows typically occur in the summer (June and July) at the height of glacial melting.

Approximately 68 percent (431,940 acres [174,801 hectares]) of DTA is wetlands. The Delta River glaciated lowlands, lower Delta Creek lowlands, and upper Delta Creek lowlands ecosections support most of the wetlands on DTA. Most wetlands are classified as Lowland Wet Low Scrub, Lowland Tussock Scrub, and Bog Lowland Wet Forests (USARAK 2004-1).

3.7.6.2 Impact Assessment Methodology

The general methodology for evaluating water resources is described in Section [3.2.6.2](#).

3.7.6.3 Environmental Consequences

3.7.6.3.1 Proposed Action

The proposed action would have adverse impacts on surface water quality, primarily resulting sedimentation from off-road maneuvering, land disturbance during road construction and establishment of new or increased use of water crossings. By implementing the site selection criteria and BMPs in the following section, the adverse impacts on surface water quality could be reduced to not significant.

The proposed action would have a potential for adverse impacts but not significant impacts to groundwater recharge. Off-road maneuvering compacts the soil which could result in an increase in overland flow and reduced groundwater recharge. The minor impacts on groundwater recharge could be reduced by allowing some training areas to rest for a full freeze-thaw cycle, which would reduce the amount of soil compaction.

The proposed action would have potentially adverse impacts but not significant impacts on floodplains. Year-round access roads would require vehicle crossings of creeks and rivers. In some instances, this may require altering the channel bottom or installing bridges to ensure year-round access. USAG-FWA

would submit an ADNR Essential Fish Habitat (EFH) application, detailing exact locations of surface water crossings and proposed crossing designs for streams used by anadromous fish species. As a condition for receiving these permits, the Army would comply with all permitting conditions designed to mitigate impacts on water resources.

The construction of new roads could impact the surface hydrology and alter the drainage patterns. Roads' culverts can focus water flow into selected channels while cutting off overland flow and flow through wetlands. The increase in flow in selected locations at culvert can have downstream impacts through the incision of the channel and streambank erosion. The decrease in overland flow and decreased water flow through wetlands can alter the hydrologic regime by decreasing flood retention of the watershed and decreasing the travel time of stormwater runoff. Hydrologic investigations are needed to ensure that culverts installed along the proposed roads would not produce a discernable change in the hydrologic flow regime of the area. Without additional details on the road alignments and hydrologic investigation of the road alignments, it is not possible to determine the significance of the potentially adverse impacts by the proposed action on the surface hydrology.

The proposed action would have impacts on wetlands, primarily resulting from the conversion and filling of wetlands associated with building new training roads and upgrading existing routes to year-round access roads. The proposed action would utilize existing roads where possible and minimize impacts on wetlands. Nonetheless, in some portions of the training areas wetlands are the predominant landscape feature (72 percent in TFTA). In the wetland-rich areas it would be difficult to avoid filling or converting wetlands. To have year-round access, raised road beds would likely be required which may result in the filling and conversion of wetlands and could alter wetland hydrology. In addition, military damage to wetlands can occur from off-road maneuvers, staging, and extensive foot maneuver during the summer when wetlands have thawed. The off-road impacts are less harmful during the winter when wetlands are frozen and snowpack protects vegetation. As result of wetland disturbance and degradation the surrounding environment can be affected by increase in peak flow during runoff events, decrease in flow volumes during low flow, loss of erosion control, loss of fish and wildlife habitat, and loss of filtering capacity of sediments and pollutants in the system.

If the proposed action area is within a wetland area as confirmed by the existing wetland inventories and site visit, USAG-FWA Environmental Resources Division staff would request a Jurisdictional Determination by the USACE. The USACE may conduct a site visit and complete a wetland delineation or require one be conducted by USAG-FWA. The USACE would recommend the type of wetland permit application to submit. As a condition for receiving these permits, USAG-FWA would comply with all permitting conditions designed to mitigate impacts on wetlands. By implementing the following site selection criteria and BMPs the adverse impacts on wetlands could be reduced.

The following measures and siting criteria are recommended for this proposal:

Surface water quality (sedimentation)

- Avoid designing roads and trails in the general direction of preferential water flow and at ground level.
- Design culverts to accommodate general local snowmelt runoff each spring and rainfall events throughout the year. As necessary, conduct hydrological investigations, improving road designs to minimize alteration of the hydrologic regime that could occur by the concentration of surface water flows through culverts and the cutoff of overland flow and water flow through wetlands.
- Where possible, conduct vegetation clearing activities during the winter months when soils are frozen.
- Adhere to the SWPPP during construction of the roads for the enhanced vehicle maneuver access.

- Control sediment transport through the utilization of BMPs for erosion and sediment control, which could include but is not limited to, silt fencing, straw wattles, and stormwater retention/detention basins during construction.
- Keep all construction staging, fueling, and servicing operations at a minimum of 100 feet from surface waters.
- Employ SPPCP measures to prevent spills and effectively address cleanup strategies before potential spill contaminants could reach water resources.
- Stabilize all disturbed areas resulting from project construction using native vegetation to minimize erosion and subsequent sedimentation of wetlands and streams.
- Schedule most off-road maneuvering during the winter, when the soil is frozen and the vegetation is covered by a protective snowpack, which limits the ground disturbance and the resulting erosion potential for the soils.
- Rehabilitate maneuver trails and areas on a rotational basis to allow the freeze and thaw process to eliminate compaction and reduce the chance of channelized flow.

Floodplains and waterways

- Construct permanent low-water crossings (i.e., ingress and egress ramps) or other features at designated vehicular stream crossings to prevent bank erosion, widening of waterways, and increased sediment in streams.
- Harden approaches to fords and ice bridges on anadromous creeks and rivers within training areas. Ensure that crossing would occur only at these approaches. Hardened approaches would reduce the amount of bank-side erosion and sedimentation occurring at crossings.

Wetlands

- Site new training roads and upgrades to existing routes to avoid construction in wetlands as much as practicable. Construction should remove the least amount of vegetation possible to avoid melting permafrost.
- Planning for alignments should consider both the direct impacts to wetlands through filling and conversion and the indirect downstream impacts of altered wetland hydrology. Higher function wetlands that impact the overall hydrologic regime should have greater protection requirements than other wetlands to avoid altering the overall hydrologic regime. As part of the planning process, a baseline assessment of wetland and stream water budgets should be conducted to evaluate the impacts to wetland hydrology and downstream impacts.
- Complete the delineation of wetlands prior to the final design of the enhanced maneuver areas. After wetland delineations have been completed, the route designs should be modified based on the wetland delineations to avoid impacting wetlands as much as possible.
- Narrow/confine trail widths in sensitive wetland habitats, or when possible, widen trails to the upland direction to avoid wetland impact.
- Use of a hydro-ax within wetlands to reduce impacts on hydric soils and low-lying vegetation.
- Fill areas would be minimized for wetlands through site-specific design and limiting construction staging to upland areas.
- Where necessary, maintain natural drainage patterns via the installation of culverts of adequate number and size to prevent flooding or excessive drainage of adjacent wetlands.

- No stockpiling of fill or construction materials in wetlands or waters of the U.S. without obtaining necessary permits. All equipment operation would be confined to the project footprint to prevent unnecessary damage to adjacent wetlands and vegetation.
- Conduct all additional avoidance, mitigation, and compensation as required by terms and conditions in the USACE Section 404 permit

However, without detailed wetland surveys of the road alignments and estimates of the expected increase in training activities, it is not possible to determine the significance of the potentially adverse impacts on wetlands.

3.7.6.3.2 No Action

The No Action Alternative would not allow the creation and operation of a year-round maneuver space in DTA, YTA, and TFTA. Use of DTA, YTA, and TFTA would continue in the winter season when impacts on surface water quality and wetlands are reduced due to the protective snowpack that overlies the soil and vegetation.

3.7.6.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals for EGMS are provided above in Section [3.7.6.3.1](#).

3.7.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.7.7.1 Affected Environment

The ROI for the EGMS action includes DTA, YTA, and TFTA. DTA is a 623,585-acre training area in the Tanana River Valley, YTA is a 249,552-acre training area just east of Fairbanks, and TFTA is a 653,746-acre training area south of the city of Fairbanks.

MUNITIONS RELATED RESIDUE

This proposed action does not include live-fire training exercises.

CONTAMINATED SITES

There are no CERCLA Superfund sites listed on the National Priorities List in DTA, YTA, or TFTA EGMS ROI. The ADEC CSP lists one site within the DTA portion of the ROI: Site 4309, Oklahoma Range Hillbilly Lake Blivit Failure ([Figure 3-37](#) and [Table 3-71](#)). There is also only one CSP site in the YTA portion of the ROI: Site 1682, listed as Fort Wainwright (2P) Nike Sites B and C. There are two CSP sites in the TFTA portion of the ROI: Site 561, Gold King Creek Radio Relay Station, and Site 1136, Fort Wainwright (OU-1) Blair Lakes FTWW-024 (ADEC 2011). No sites are listed in the Army Environmental Restoration database for this ROI (USAEC 2010).

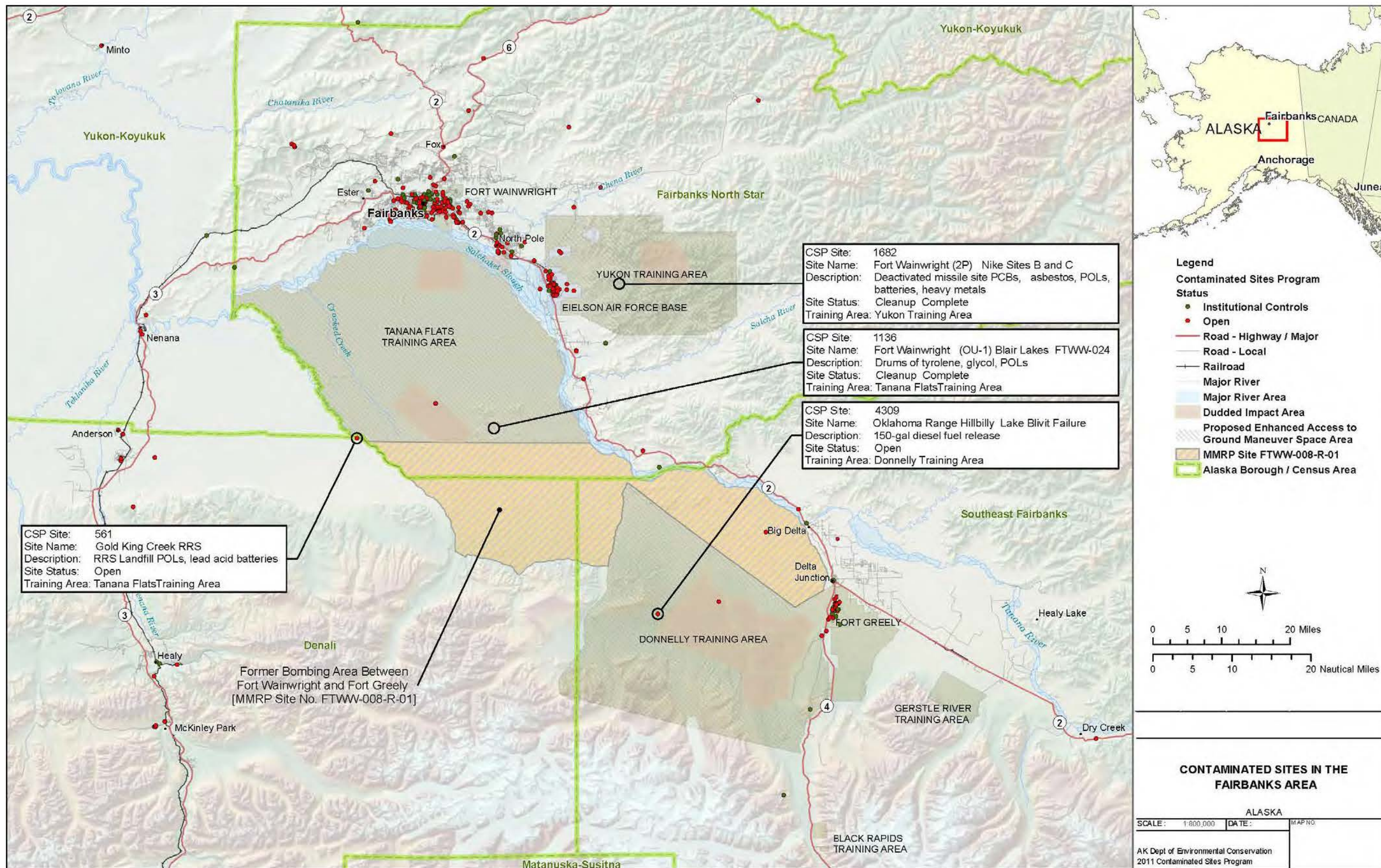


Figure 3-37. Contaminated Sites in the Fairbanks Area

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**Table 3-71. Contaminated Sites in the Enhanced Access to Ground Maneuver Space
 Region of Influence**

CSP Site #	Site Name	Description	Site Status	Training Area
4309	Oklahoma Range Hillbilly Lake Blivit Failure	150-gal diesel fuel release	Open	DTA
1682	Fort Wainwright (2P) Nike Sites B and C	Deactivated missile site PCBs, asbestos, POLs, batteries, heavy metals	Cleanup Complete	YTA
561	Gold King Creek RRS	RRS Landfill POLs, lead acid batteries	Open	TFTA
1136	Fort Wainwright (OU-1) Blair Lakes FTWW-024	Drums of tyrolene, glycol, POLs	Cleanup Complete	TFTA

Key: DTA= Donnelly Training Area; FTWW=indicates an environmental restoration site; PCB=polychlorinated biphenyl; POL=petroleum, oil, and lubricant products; ROI=region of influence; RRS= indicates an environmental restoration site; TFTA=Tanana Flats Training Area; YTA=Yukon Training Area.

3.7.7.2 Impact Assessment Methodology

The general methodology for evaluating hazardous materials and waste is described in Sections [3.1.7.1](#) and [3.1.7.2](#).

3.7.7.3 Environmental Consequences

3.7.7.3.1 Proposed Action

GENERAL HAZARDOUS MATERIALS AND WASTE

This proposal would provide year-round accessibility, internal circulation, and expanded maneuver space to support brigade level events with battalion-size training occurring in DTA, YTA, and TFTA. There are four known ADEC CSP sites in the ROI of the proposed action.

See Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, with respect to existing mitigations that would be applicable to the proposed action. As part of those existing mitigations, the project proponents would utilize the range Institutional Control maps to avoid these locations when siting construction and maneuver areas. If the sites could not be avoided, established BMPs and SOPs would be followed. Project proponents would coordinate with range Environmental Clean Up personnel to gain proper regulatory approval for work in the contaminated site prior to construction activities. A pre-construction environmental survey would be completed to reduce the potential for construction to encounter petroleum and/or hazardous waste contamination. Construction activities associated with this action could also lead to the discovery of previously unidentified contaminated soils. If contaminated soils were encountered during construction activities, work would stop immediately and IRP/Defense Environmental Restoration Program (DERP) personnel would respond and initiate cleanup.

POL would be used by equipment and vehicles involved in the construction of access roads and training activities associated with this action. As a result, there is the potential for accidental chemical release from refueling or vehicle emergency maintenance activities. Spills of petroleum products or hazardous waste could potentially penetrate into on-site soils resulting in soil and/or groundwater contamination. The Army would manage hazardous materials/waste in accordance with AR 200-1, *Environmental Protection and Enhancement* (Army 2007), which provides guidance on oil and hazardous substance spills, hazardous materials management, and the IRP. In addition, AR 200-1 requires development of a

spill prevention, control, and countermeasures plan, which would provide protective and corrective measures for accidental releases of hazardous substances or petroleum products. Range personnel may apply regulations in addition to AR 200-1 that are not designed to supersede, but rather work as a complement to those policies and procedures. BMPs would be followed by range personnel, which would limit refueling activities and storage within 100 feet of any stream, lake, or river crossing. Other BMPs currently in place would address hazardous materials and waste management and mitigate the effects of contaminants on soil and surface waters at training locations.

In addition to the relevant Army regulations, Range personnel would comply with Federal regulations that govern hazardous waste, including RCRA, CERCLA, Toxic Substances Control Act, and the CWA, as well as State of Alaska regulations, including 18 AAC 62-Hazardous Waste, 18-AAC75-Oil and Other Hazardous Substances Pollution Control, and 18 AAC 75.341-Soil Cleanup Levels.

Pre-planning for siting of new infrastructure or new activities at ranges or on training areas requires coordination with the USARAK IRO. The USARAK IRO and USAG-FWA Environmental Division review the range user's proposal and work directly with the (Air Force/proponent/user) to select a location that is suitable for the proposed purpose, while also considering a range of environmental, operations, and land use constraints. These considerations as well as information from the ITAM, RTLA, and LRAM programs would factor into site selection and specific restrictions or BMPs that the proponent must agree to follow. This includes periodic or post-activity assessments, restorative actions, and site clean-up. The risk of petrochemical spills is expected to increase over baseline conditions under the proposed action, due to the need to transport fuel and perform refueling operations in the field during construction and training operations. However, no beneficial or adverse impacts would occur, due to the infrequency of such activities, combined with existing procedures and controls.

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

No beneficial or adverse hazardous materials impacts would occur in association with munitions use, as training and operations would not include live fire.

3.7.7.3.2 No Action

Under the No Action Alternative, there would be no creation and operation of year-round maneuver space in DTA, YTA, and TFTA. Therefore, hazardous material related impacts would not occur.

3.7.7.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals for EGMS are provided above in Section [3.7.7.3.1](#).

3.7.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.7.8.1 Affected Environment

The proposed project area for EGMS is being assessed in a programmatic manner because exact access and space requirements have not yet been determined. Proposed areas for the addition of summer use (where currently only winter access is possible) under this alternative include DTA, TFTA, and YTA. General biological resources of DTA-East have been described in Section [3.3.8](#), and TFTA resources are described in Section [3.8.8](#). Sensitive resources present during the summers, and thus subject to new

levels of military activity in these areas, will be reiterated for this alternative to be used in a constraints-type analysis for the Environmental Consequences section.

VEGETATION

YTA occurs in the Yukon-Tanana Uplands ecoregion briefly described in Section [3.4.8](#) (see Figure B-11 in Appendix B). Vegetation present varies dramatically by aspect, elevation, and slope. Forest communities cover 83 percent of YTA, and conifers and broadleaf trees are present across most of the project area. Classifications that predominate within the EGMS study area include open and closed spruce forests; broadleaf, and mixed forests; and tall and low shrub communities. Land type acreages for all study areas are presented in [Table 3-72](#).

Spruce-dominated forest—classified as open spruce, spruce and broadleaf, and open and closed spruce forest—covers approximately 41 percent of TFTA within the EGMS study areas ([Table 3-72](#)). Additional details on vegetative cover classes and species present in TFTA are described in Section [3.8.8](#).

Open and closed spruce forest is the most prevalent vegetation class in the EGMS project study area within DTA, providing about 36 percent of the cover. Various other spruce-dominated forests make up the majority (45 percent) of other vegetation classes in DTA, with tall and low shrub contributing approximately 10 percent of the cover classes. Additional details on vegetative cover classes present within DTA are described in Section [3.3.8](#).

WILDLIFE

DTA occurs primarily within the Tanana-Kuskokwim Lowlands ecoregion, and, similar to TFTA, is quite rich in wildlife resources. The training area is covered almost entirely by habitats mapped as wetlands. As such, DTA is used extensively by moose during rutting, calving, winter, and summer seasons (see Figure B-16 in Appendix B). Waterfowl use the Delta River and the entire northern boundary of the training area for resting and migratory stopover as well as for part of their migration corridors (see Figure B-14 in Appendix B).

A large portion of floodplain along the Delta and Tanana River tributaries, including Delta Creek and Little Delta River in DTA, have been identified as important roosting or rest areas for migrating sandhill cranes (USARAK 2006-2; USARAK 1999-1). ADFG identified additional areas along Delta Creek near the Delta Creek Assault Landing Strip as important for migrating sandhill cranes. This sandhill crane habitat has been designated as a USARAK Special Interest Management Area, which places limits on disturbance each year from April 25 through May 15 and from September 1 through September 30 (USARAK 2006-2). The Army can conduct military activities in these areas if they first consult with ADFG.

DTA is used extensively by the Delta caribou herd during winter into spring calving season, after which they move off DTA, primarily to the west for summer range (see Figure B-13 in Appendix B). The cooperative agreement between the Army and ADFG identified 12 parcels on DTA as important calving and postcalving areas for caribou (USARAK 2006-2). The Army agreed to suspend activities or operations that would adversely affect sensitive areas from May 15 through May 31, without having to consult with ADFG. Restrictions in these areas are in effect only when caribou are present. In addition, all development and military actions in the caribou calving grounds will be conducted only under winter conditions when there is sufficient snow cover and the ground is adequately frozen to minimize the damage to vegetation and soils.

Table 3-72. Land Types Associated with the Enhanced Access to Ground Maneuver Space Project

Project Area	Spruce and Broadleaf Forest	Open and Closed Spruce Forest	Spruce Woodland / Shrub	Open Spruce and Closed Mixed Forest Mosaic	Open Spruce Forest/ Shrub/Bog Mosaic	Closed Mixed Forest	Closed Spruce Forest	Gravel Bars	Alpine Tundra and Barrens	Dwarf Shrub Tundra	Tall and Low Shrub	Tall Shrub
	Acres (hectares)											
YTA	131,891 (53,374)	24,019 (9,720)	15,445 (6,250)	0	25,684 (11,408)	0	1,481 (599)	0	0	0	2,654 (1,074)	20,789 (8,413)
TFTA	141,625 (57,314)	91,049 (36,846)	3,284 (1,329)	10,366 (4,195)	332,796 (134,678)	4,498 (1,820)	0	6,858 (2,775)	0	53 (22)	66 (27)	5,679 (2,298)
DTA	34,520 (13,970)	139,412 (56,418)	53,806 (21,775)	282 (114)	87,327 (35,340)	0	0	19,879 (8,045)	2,238 (906)	6,172 (2,498)	41,051 (16,613)	5,523 (2,235)

Key: DTA=Donnelly Training Area; TFTA=Tanana Flats Training Area; YTA=Yukon Training Area.

Source: USGS 1991.

Dall sheep also utilize a small area in the south-central portion of DTA for winter range and then move to the south to access mineral licks and for summer range. After emerging from hibernation, brown bear access the Delta River and other streams in the southern portions of DTA for fishing in spring (see Figure B-16 in Appendix B).

As described for vegetation communities, common wildlife species present in the Yukon-Tanana Uplands ecoregion where YTA occurs are tied to specific elevations, often seasonally, and include caribou and moose, usually found in lowland areas in all but the summer season, and snowshoe hare, marten, and lynx in higher elevations. Black and brown bear are plentiful throughout the ecoregion. The area's abundant cliffs provide important habitat for peregrine falcons and other raptors. High-use areas for moose for all seasons occur to the north, west, and south of YTA as well as in the eastern portion of the training area (see Figure B-16 in Appendix B, *Definition of the Resources and Regulatory Settings*). Specific areas known for moose use include Moose Creek and the Chena River floodplain, Hunts Creek, Horner Creek, Beaver Creek, Ninetyeight Creek, and the Little Salcha River drainage as it enters the YTA boundary (USARAK 2004-1).

The Fortymile herd of caribou also uses YTA, but the herd has been in decline over the last 50 to 60 years. Currently, important caribou wintering habitat has been identified primarily off YTA to the northeast but overlapping within a northeastern portion of the training area. Medium to small furbearing mammals—wolverine, coyote, lynx, red fox, pine marten, wolves, snowshoe hare, and beaver—are also found in YTA. The clear headwater streams in the Yukon-Tanana Uplands ecoregion are important spawning areas for Chinook, chum, and coho salmon. However, anadromous fish are typically not present in YTA because the major waterways used by these fish occur off the training area to the north, west, and south. As discussed in more detail in Section 3.8.8, approximately 2 million waterfowl migrate through TFTA and the Chena floodplain north of YTA each spring, followed by 5 million birds in the fall, peaking in September (USARAK 2004-1). As with the sensitive fish, most of the identified sensitive waterfowl habitat occurs outside YTA along major waterways to the north, west, and south (see Figure B-15 in Appendix B).

Important wildlife issues for TFTA include the fact that the Tanana River serves as a major migratory waterfowl corridor as well as resting/stopover and nesting habitat through interior Alaska and supports anadromous fish and raptor nests. Bald eagle nests are common on the Tanana River and usually occur within 328 feet (100 meters) of a shoreline. Active nests are generally spaced from 12 to 16 miles apart. Data that was available for eagle nests are presented in Figure B-12. Potentially suitable nesting habitat for bald eagles, based on proximity to water and tree presence, was modeled and is shown on the figure. As indicated by the dates given, only a fraction of the nests shown would be active during any one year. Individual pairs of swans may nest anywhere on TFTA in a given season. Swans are known to nest on the northern and western portions of TFTA. These nests have been monitored over 30 years (USARAK 2004-1). The lowlands of this region are also important as large ungulate habitat. Moose use the entire TFTA for rutting in fall, calving in spring, and for winter foraging, especially in high-snow-depth years (see Figure B-16 in Appendix B). Spring and summer moose densities increase two- to four-fold in TFTA including migrations from other watersheds and the northern foothills of the Alaska Range (USARAK 2004-1). Caribou use approximately the southern quarter of TFTA for winter foraging (see Figure B-13 in Appendix B).

Approximate acreages used by wildlife for known important life stages that occur within the study areas of the EGMS ROI are presented in [Table 3-73](#).

Migration routes are difficult to accurately quantify but are essential to wildlife, as they allow access to seasonal ranges and rutting/breeding areas.

Table 3-73. Wildlife Habitats Associated with the Enhanced Access to Ground Maneuver Space Project

Study Area	Moose Winter Habitat	Moose Rutting Habitat	Moose Calving Habitat	Caribou Winter Habitat	Caribou Calving Habitat	Dall Sheep Winter Habitat	Waterfowl General Habitat
	Acres (hectares)						
YTA	72,877 (29,492)	72,877 (29,492)	72,877 (29,492)	20,325 (8,225)	0	0	14,424 (5,837)
TFTA	595,509 (240,994)	595,509 (240,994)	591,866 (239,520)	106,570 (43,127)	0	0	549,964 (222,562)
DTA	345,653 (139,881)	301,804 (122,136)	361,113 (146,137)	379,712 (153,664)	289,665 (117,223)	11,155 (4,514)	134,126 (54,279)

Key: DTA=Donnelly Training Area; TFTA=Tanana Flats Training Area; YTA=Yukon Training Area.

Source: RDI 2005-1, 2005-2, 2005-3, 2005-4, 2005-5, 2005-6.

3.7.8.2 Impact Assessment Methodology

The general methodology for evaluating biological resources is described in Section [3.1.8.2](#).

3.7.8.3 Environmental Consequences

3.7.8.3.1 Proposed Action

Actions that may include ground-disturbance and consequently, vegetation clearing within the proposed study locations (DTA, YTA, and TFTA) include: construction of additional access roads to provide training area circulation routes and integrate the proposed ISBs, construction of other supporting infrastructure, and expansion of maneuver space. Ground disturbance and land clearing would result in vegetation and wildlife habitat losses.

Recommended siting criteria include minimizing construction in the following known sensitive habitats in the project study areas (different avoidance seasons apply; see the biological resources mitigations table in Appendix G, *Biological Resources*, and Figures B-11, B-13, and B-14 in Appendix B):

- Bogs and other wet habitats
- Moose calving, rut and winter habitats
- Caribou calving, rutting, and winter habitats and migration routes
- Dall sheep winter habitat and migration routes
- Waterfowl general, migration stopover/resting, and nesting areas
- Swan habitats
- Brown bear seasonal habitat and fish streams
- Sensitive bison habitat

Existing amounts of vegetation classes that were mapped within the EGMS proposed study areas are given in [Table 3-72](#) (above). Wet areas occur on all training areas and are mapped as plant communities with “bog” vegetation classes (Open Spruce Forest/ Shrub/Bog Mosaic). Avoidance of these areas by proper project component siting would substantially reduce permitting and mitigation requirements, as well as expenses that accompany the need to fill wetlands for road and other facility construction. Overall

direct project impacts on vegetation would be the reduction in area of the vegetation types that occur within the permanently developed construction footprints. These effects would be localized and vegetation communities as a whole would not be expected to be adversely affected. The vegetation classes present in the study locations are not unique or considered sensitive communities but are widespread across the project region.

Temporary effects would occur to vegetation cleared or trampled in areas needed for construction access, work areas, and equipment staging and storage. These areas would be reclaimed and/or revegetated according to established BMPs and SOPs.

Noxious weed/invasive plant species introduction and spread is a common impact of construction projects. In addition to the controls outlined in the USARAK 2007–2011 INRMP, USAG-FWA recommends monitoring sites soon after construction has ceased, monitoring source materials and keeping them weed-free, and requiring contractors to wash equipment before coming on to post (Fort Wainwright 2008). Established programs and measures to prevent and minimize weed spread are also given in the biological resources mitigations table in Appendix G, *Biological Resources*.

With the all-season access provided by the proposed EGMS roads, there is a potential for physical damage to vegetation, soils, and wildlife habitat from off-road vehicular and troop maneuvering when the ground surface is not frozen. This potential is exacerbated by the extensive wet habitats present throughout the study areas (see Water resources). Application of appropriate siting criteria and BMPs will be necessary to manage and minimize the potential for long term habitat damage during operations. The Army also has developed a general approach to address land impacts from training as part of the ITAM program, as discussed in Appendix B, *Definition of the Resources and Regulatory Settings*.

The USARAK military mission works to foster relatively healthy, stable ecosystems (Fort Wainwright 2008). USAG-FWA also has a commitment to natural resources management, including minimizing and mitigating military mission damage. This commitment is beneficial for both natural resources in general and people who use them, while not conflicting with the training mission. A review of applicable mitigation measures for this project is given below.

Approximate acreages of known wildlife habitat of importance within the three study areas are presented in [Table 3-73](#) (above). New road and other facility construction as part of EGMS would not be expected to reduce the amounts of available habitat of any one type to a substantial degree. However, fragmentation of larger habitats and/or migration routes by corridor-type roads and utilities, and large facilities may occur, impeding access to specialized habitat for important life stages such as breeding or calving. Construction activities can also cause animal mortality, especially for smaller, young, and less mobile species. No known endangered or threatened wildlife species are present on the project study areas and known wildlife habitats are generally widely available within the project region. As specified in the Description of Proposed Action and Alternatives (DOPAA), project proponents would work closely with the ADFG prior to specific site selection to avoid adverse effects to sensitive wildlife populations or habitats that may be present. Those important wildlife habitats that are known and mapped in the three project study areas are discussed below.

Approximately 2 million waterfowl migrate through TFTA and the Chena River floodplain north of YTA each spring followed by 5 million birds in the fall, peaking in September (USARAK 2004-1). Major migration routes for waterfowl are associated with the Tanana and Delta river corridors (see Figure B-15 in Appendix B, *Definition of the Resources and Regulatory Settings*). Bald eagle nests are common on the Tanana River and usually occur within 328 feet (100 m) of a shoreline. Active nests are generally spaced from 12 to 16 miles apart. Data available for eagle nests are presented in Figure B-12. To protect migratory birds and their active nests where areas of land need to be cleared for construction projects, the

USFWS developed timing guidelines for vegetation clearing in interior Alaska to assist in compliance with the MBTA. These are presented in [Table 3-74](#).

Table 3-74. Vegetation Clearing Timing Guidelines for Migratory Bird Treaty Act Compliance

Habitat Type	Timing Guidelines for No Vegetation Clearing
Forest or woodland ¹ (i.e., trees present)	May 1 – July 15 ²
Shrub or Open (i.e., shrub cover or marsh, pond, tundra, gravel, or other treeless/shrubless habitat)	May 1 – July 15 ²
Seabird colonies (including cliff and burrow colonies)	May 1 – July 20 ³
Raptor and raven cliffs	April 15 – August 1

¹ Owls may begin to nest earlier than these guidelines and surveys prior to May tree-clearing may be necessary to protect active owl nests.

² In Canada geese and swan habitat, begin April 20.

³ Seabird colonies in interior Alaska refer to terns and gulls.

Source: USARAK 2006-2; USARAK 2008-1.

Active nests encountered at any time including before, during and after vegetation clearing windows must be protected from destruction. “Active” is indicated by presence of intact eggs, live chicks, or an adult bird on the nest (USARAK 2006-2).

Wildlife seasonal habitats that support specific spring through fall life cycle activities located on TFTA include duck, geese, and swan resting, migratory stopover (general habitat), nesting and migration routes (Figure B-14 in Appendix B, *Definition of the Resources and Regulatory Settings*), and moose rutting and calving habitats (Figure B-16). For terrestrial species during sensitive life stages (e.g., calving) and for more sensitive wildlife species, the noise and sudden appearance of vehicles may be startling enough that individuals abandon activities and flee an area. This type of behavior would primarily be expected initially after new activities are introduced (refer to Section [3.1.8.3](#) for discussion on noise effects to wildlife). However, for wildlife species that already occur on the training areas and have experience encountering military training activities, reactions would be expected to diminish as individuals habituate to repetitive noises that prove to be harmless.

Spring through fall wildlife life cycle activities known to occur on DTA-East that may be disturbed include moose rutting, calving, and summer seasons. The Delta Caribou Herd remains on DTA for calving and DTA provides important post-calving habitat prior to travel to summer range (Figure B-13 in Appendix B, *Definition of the Resources and Regulatory Settings*). Waterfowl use the Delta River in eastern DTA and along the northern boundary for resting/stopover, migration corridors, and nesting (Figure B-15). After emerging from hibernation, brown bears access the Delta River and other streams in the southern portions of DTA for fishing during spring (Figure B-16). Sandhill crane roosting areas and migratory stopover habitat that occur along the three primary river floodplains across DTA-West are protected by USARAK as special interest management areas, which include restrictions on military training when cranes are present along the Delta River and Delta Creek (USARAK 2006-2) (see the biological resources mitigations table in Appendix G, *Biological Resources*).

Spring through fall wildlife life cycle activities on YTA include moose rut and calving habitats, primarily in the eastern portion of the training area (Figure B-16 in Appendix B). Most of the identified sensitive waterfowl habitat used for resting/stopover and migration primarily occurs outside YTA along major waterways to the north, west and south (Figure B-15 in Appendix B).

Potential indirect effects to wildlife that often accompany construction activities include the addition of noise, dust, trash, and potential spills. General BMPs and SOPs are normally applied by the Army to reduce these potential effects and provide contingency plans in case of hazardous spills.

Beyond the direct effects of habitat loss and fragmentation, of particular concern for the EGMS project implementation would be the proposed new activity types, amounts, frequencies, and timing of ordnance and vehicle use and human presence introduced into wildlife habitat following the construction of new road access. These activities, especially the change in season of human activity to include spring through fall months (beyond the winter-only access possible in the past), may adversely affect resident and migratory wildlife behavior or activities during seasonal life stages such as calving, nesting, breeding, or critical winter range use by populations that are accustomed to being undisturbed during these seasons. Most adverse disturbance effects would be expected to be localized and temporary, after which the species would be expected to habituate to the activities or to move out of the area. The amount of wildlife activity that currently occurs in the proposed project study areas reflects habituation to some exposure of the animals to existing military activity. With careful planning and mitigation, the impacts on biological resources including wildlife from the EGMS seasonal access project could be reduced by adopting applicable mitigation measures listed in the biological resources mitigations table in Appendix G, *Biological Resources*.

However, even with the application of adequate siting criteria, seasonal restrictions for sensitive life stages, and application of other appropriate measures and BMPs, uncertainties about biological impacts exist for this programmatic project because the locations and specifics of construction at each training area and the biological resources that would be affected by the project are not presently known. Due to the amount and extensiveness of ground disturbance required for EGMS project construction, and operation effects that include allowing all-season vehicle and human access to areas previously accessible only during winter, impacts to vegetation communities and wildlife populations from the implementation of the EGMS project would be adverse and likely to be significant.

3.7.8.3.2 No Action

The current amount of localized ground disturbance (from training, vehicles and live fire) would be expected to continue and wildlife using the area would be expected to remain active in occupied habitats.

3.7.8.4 Considerations for Future Planning

In addition to siting criteria and vegetation clearing guidelines listed in Section [3.7.8.3](#), other measures, BMPs, and SOPs that should be applied to ground-disturbing activities are included in Appendix G, *Biological Resources*.

3.7.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.7.9.1 Affected Environment

The ROI for the EGMS action consists of DTA, TFTA, and YTA ([Figure 2-12](#)). The DTA and TFTA portions of the EGMS affected environment are the same as described in Section [3.2](#), Realistic Live Ordnance Delivery. The YTA portion of the EGMS affected environment is the same as described in Section [3.4.9.1](#), Expand Restricted Area R-2205.

3.7.9.2 Impact Assessment Methodology

Analysis of potential impacts on cultural resources on the ranges considers both direct and indirect impacts. Direct impacts may occur by physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or alter its setting; or neglecting a resource to the extent that it deteriorates or is destroyed. Direct impacts are assessed by identifying the types and locations of proposed activity and determining the location of cultural resources that could be affected. Indirect impacts result primarily from the effects of project-induced population increases and the need for construction to accommodate population growth. Construction activities and the subsequent use of the facilities can impact cultural resources.

Archaeological and historic architectural resources at the ranges were characterized using existing survey and analysis information from installation ICRMPs, historic preservation plans, archaeological survey reports, historic buildings survey reports, local histories, and the records of the National Register of Historic Places and National Historic Landmarks Program. These documents provided information on known locations of significant resources and identified areas with a high potential for unrecorded cultural resources.

The potential for traditional resources at the ranges was identified using ICRMPs, historic preservation plans, and information provided by installation cultural resource management staff. In addition, potentially interested Alaska Native groups were contacted to request information on potential concerns about the proposed action.

3.7.9.3 Environmental Consequences

3.7.9.3.1 Proposed Action

This Action would allow for the creation and operation of year-round maneuver space in DTA, YTA, and TFTA. This proposal would provide year-round accessibility, internal circulation, and enhanced maneuver space to support brigade-level events with battalion-size training occurring in TFTA, YTA, and DTA. Brigade units would interact with JIIM components in order to provide a realistic training environment.

There is the potential for impacts on cultural resources from the construction of roads, establishment of maneuver areas, and training associated with this action. Prior to implementation of any element of this proposed action, the Army would comply with NHPA Section 106, including identification of historic properties, and assessment and resolution of adverse effects through consultation with Alaska SHPO and potentially affected Federally recognized tribes.

There is the potential for impacts on traditional cultural resources or Alaska Native activities from the proposed action. Although no traditional cultural properties have been specifically identified in the ROI, this does not mean that none are present. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has initiated government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed establishment of year-round maneuver space in DTA, YTA, and TFTA (see Section [1.6.5](#)). Consultation will continue as the proposal progresses toward a definitive action.

3.7.9.3.2 No Action

Under the No Action Alternative there would be no establishment of maneuver areas in DTA, YTA and TFTA. Existing use of the ranges and airspace would continue under this alternative and resources would continue to be managed in compliance with Federal law and Army regulations.

3.7.9.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals for EGMS are provided above in Section [3.7.9.3.1](#).

3.7.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.7.10.1 Affected Environment

LAND STATUS, MANAGEMENT AND USE

This proposal only involves military land comprising DTA, TFTA, and YTA. The military uses on these areas are described in Sections [3.2.10.1 \(DTA and TFTA\)](#), [3.3.10.1 \(DTA-East\)](#), and [3.4.10.1 \(YTA\)](#). TFTA, DTA-West, and YTA have a combined total of about 5,360 square kilometers (km²) of maneuver area, of which about 13 percent is designated for heavy maneuver. Currently, use of maneuver areas is limited because access is restricted by few bridges over major rivers. This increases driving and insertion time, resulting in little time for training in the field. During winter months, frozen rivers allow easier crossing. During summer months, wet and untrafficable conditions further reduce accessibility to maneuver land by about 10 percent (USARAK 2010-5).

[Table 3-75](#) lists the special use areas in areas surrounding the proposal area. [Figure 3-38](#) illustrates the military uses, special use areas, general land status, productive uses, and public infrastructure trails in and around the proposal areas. The predominant public use of both military and surrounding land is for recreational hunting and fishing, as well as subsistence hunting, fishing, trapping, and harvesting, with no ongoing mineral extraction and productive uses. Habitat conservation and vegetation management are also important undertakings on military and State lands, including forestry (primarily on State land). There is no mining and energy resource extraction on military lands; however, rights-of-way, leases, and permits for regional and national infrastructure traverse Army lands. These mostly linear infrastructure corridors limit surface activities that could damage associated equipment, pipelines, and transmission lines.

Table 3-75. Special Use Areas Within Enhanced Access to Ground Maneuver Space Proposal Area

Special Use Area	Designation	Alternative	
		Action Alternative	No Action
Tanana Valley State Forest	State Forest	X	N/A
Chena River	State Recreation Area	X	N/A

Key: N/A=not applicable.

Source: ADNR 2011-3.

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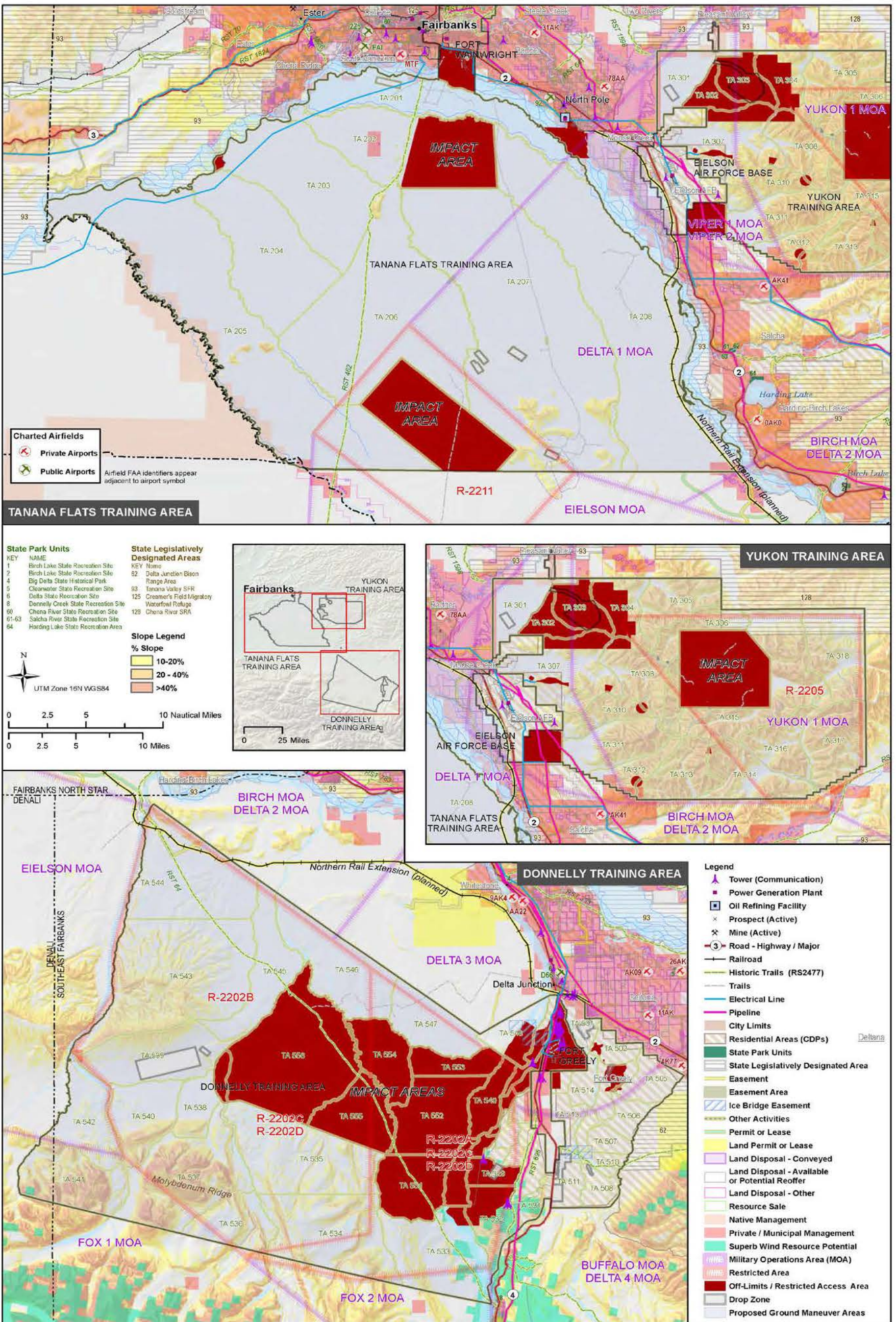


Figure 3-38. Military Uses, Special Use Areas, General Land Status and Productive Uses – Enhanced Ground Maneuver Proposal Area (include trails)

Source: ADNR 2009-1, ADNR 2009-2, ADNR 2009-3, ADNR 2009-4, ADNR 2011-2, ADNR 2011-3, ADNR 2011-4, ADNR 2011-7, AWS TrueWind/NREL 2003, FNSB 2006, NGA no date, SAIC 2011-3, USCB 2010-1, USGS 2005-1, USGS 2005-2

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PUBLIC ACCESS

Land Access

Access and use to military lands under consideration for enhanced ground maneuvers are described in Section [3.2.10.1](#) (for DTA and TFTA), Section [3.3.10.1](#) (for DTA-East), and [3.4.10.1](#) (for YTA). RS 2477 trails within the area of influence of this proposal include Bonnifield Trail (RST #462), Donnelly Dome: Old Valdez Trail Segment (RST# 695), and Donnelly-Washburn (RST #64). These trails are listed in [Table 3-76](#). These trails extend beyond the boundaries of military land and are important for public access into remote areas not accessible by road.

Table 3-76. Public Access Infrastructure Within the Enhanced Access to Ground Maneuver Space Proposal Area

Public Access	Designation/RST #	Length (Miles)
Bonnifield Trail	RS 2477/ RST 462	32
Donnelly Dome: Old Valdez Trail Segment	RS 2477/ RST# 695	<1
Donnelly-Washburn	RS 2477/RST #64	26

Source: ADNR 2009-2

Aerial Access

Public aerial access to these training areas is described in Sections [3.2.10.1](#) and [3.3.10.1](#) (for DTA and TFTA), and Section [3.4.10.1](#) (for YTA).

Navigable and Public Waters

There are no designated navigable waters on any of the three USARAK training areas considered in this proposal, but TFTA is partially bordered by navigable segments of the Wood and Tanana Rivers.

RECREATION

Federal and State designated recreation lands within the ROI for this proposed action and alternatives are listed in [Table 3-31](#) and [Table 3-44](#) and shown in [Figure 3-38](#).

Recreation on Military Land. Recreation on military lands is described in Sections [3.2.10.1](#) (DTA and TFTA), [3.3.10.1](#) (DTA-East), and [3.4.10.1](#) (YTA).

Recreation on Non-military Land. There are no Federally designated recreation lands within the ROI of this proposal. State designated recreation lands within the ROI for this proposed action are listed in [Table 3-75](#) and include the Tanana Valley State Forest near TFTA and Chena River State Recreation Area north of YTA.

3.7.10.2 Impact Assessment Methodology

General methodology pertaining to evaluating land use, public access, and recreation are described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The primary sources of impact on land use, including public access and recreation, from this proposal include:

- Effects of training operations involving heavy pedestrian traffic both on and off roads and trails, bivouacking, vehicle operations on both roads and trails, and limited off-road maneuvering.

- Effects of developing new facilities and infrastructure on existing land uses, access, and recreation.
- Effects of using new facilities and infrastructure on existing land uses, access, and recreation.

Land Status, Management and Use. The assessment reviews the physical and operational requirements for establishing additional ground maneuver areas on Army lands. The analysis assumes that:

- Maneuver areas (both light and heavy) would be confined to existing military land within DTA, TFTA, and YTA;
- Development would include construction of roads and trails capable of supporting heavyweight military vehicles either for training or access purposes;
- Selection of suitable areas would consider environmental criteria (defined in other sections of this EIS), and operational safety;
- A new “traffic bridge” between DTA and TFTA is a possible future enhancement in order to achieve adequate contiguous operating area for battalion and brigade-sized training requirements.

The assessment considers siting and other functional parameters to include in planning future proposals to minimize potential impacts on land use, public access, and recreational use.

Public Access. The assessment considers possible changes in access from construction of maneuver road networks and closures during training periods. It also identifies any potential long-term changes in access from future maneuver training activities. These may be either detrimental or beneficial, particularly if the project itself provides new infrastructure for multiple users.

Recreation. The analysis of impacts on recreation follows a similar approach as the land use analysis, focusing on displacement or qualitative change to recreational resources or sites near the proposed project.

For programmatic proposals, proposed siting criteria are the basis for assessment. Where these are not specified or are not developed, the investigation identifies measures that would reduce conflicts with land use, access, and recreation, including identification of agencies and parties to include in a project-planning process.

3.7.10.3 Environmental Consequences

3.7.10.3.1 Proposed Action

The current USARAK RTLP Development Plan identifies over 1.3 million acres for combined maneuver, of which about 244,652 acres is designated for “heavy” maneuver on DTA, YTA, and TFTA (USARAK 2010-5). The proposal implies that most of the land identified for maneuver training on the three training areas would support some level of maneuver. Large contiguous areas would support light and heavy maneuver training for an additional 98 days per year, concentrated in seven periods of 14 consecutive days of use. Additionally, JIIM utilization of the training areas can be up to 242 days annually. This would significantly reduce the amount of time when training areas are available for public access. The intensive activity of maneuver training could also alter vegetation and could reduce game abundance or redistribute the areas where game is typically found.

The Sikes Act provides for the sustainable multipurpose use of natural resources (hunting, fishing, trapping, and non-consumptive uses) on military lands, subject to safety requirements and military

security. This translates into goals and efforts to provide public access to the training areas for recreation and subsistence purposes, as described in the USARAK INRMP (USARAK 2006-2). Implementing this proposal would greatly alter natural resource management objectives and the availability for multipurpose use on Army lands. A potential positive benefit could result from expanding the network of roads that could open up inaccessible areas not only for military activities, but also for public use (primarily hunting) and range management tasks.

Below, a pre-planning process and a set of recommended project siting criteria are described specific to land use management, access continuity, and recreational opportunity. The extent to which these (and other environmental criteria) are feasible and incorporated into future maneuver enhancement proposals would influence the potential degree of impact. Without including these measures, the potential for significant adverse impacts on land use, access, and recreation is high.

- During future enhancement project pre-planning phase, the proponent should identify and coordinate with other potentially affected landowners or managers (including State, borough, or Federal managers and private owners, permit holders, or leasees). This process would identify sensitive locations and areas of concern to avoid or buffer on either adjacent lands, or lands within a project area boundary. Discussions would provide for exchange of information and for identifying reasonable joint-uses and feasible operational adjustments to accommodate ongoing uses and interests.
- Subsequently, USAG-FWA could work with ADFG and ADNR to notify and publish training schedules well in advance so that public users can plan their hunting options accordingly.
- To the extent possible, future proposals should identify the intended training schedule and patterns. To minimize impacts on public recreational use as well as hunting and other subsistence uses on the installation, future ground maneuver proposals should incorporate schedule and timing limitations that would ensure public access during the most important times for public purposes. Patterns of use taken from current and past USARTRAK data can provide information for these screening criteria, as well as input from ADFG. Scheduling brigade-sized maneuver events outside of popular hunting areas and seasons would reduce potential impacts. Strategies to achieve these criteria also include rotating or selecting areas for training that have lower value or less overlap with public uses and hunting.
- Planning for future ground maneuver areas should evaluate how integrated, multi-echelon training may expand or shift noise exposure footprints exposed to 62 dB CDNL or above. This may be particularly important for activities and firing points closest to range boundaries and more urbanized areas around Fort Greely and Delta Junction. Confining noise exposures of 62 dB CDNL within military land boundaries would reduce potential conflicts with surrounding jurisdictions and landowners.
- Sites for new bridges and roads should avoid existing low-water river crossings used for public access for hunting and recreational uses.
- New road alignments should avoid displacing existing trails that currently provide access for public recreational use unless they can serve both users. Proposals could include replacement trails if necessary, or allow joint-use of enhancement infrastructure for non-military access when it does not interfere with the military mission.
- Avoid using areas for maneuver training near stocked lakes that provide a recreational and subsistence benefit.
- Where possible, new access roads and maneuver training should avoid using or encumbering lands with high productive use potential. There are no ongoing commercial productive uses on

DTA, YTA, and TFTA, so potential for impacts are minimal. Applying planning overlays depicting productive use feasibility zones (based on resource potential for forestry, geothermal or wind energy, and minerals, for example) would allow for planning new road alignments that are compatible with long-term sustainability and allocation of land resources.

- New roads and maneuver areas should avoid existing rights-of-way, easements, pipelines, and other range infrastructure that are prone to damage from surface operations or ground disturbance.
- Selection of lands for enhanced maneuver training should apply criteria base on ability to sustain and support vehicular activity or construction, in order to minimize environmental degradation that could indirectly impact hunting, fishing, and gathering of subsistence products;
- New roads should avoid truncating, displacing, or overlapping with existing RS trails and other trails, and special use areas with legislated purposes or protection, both on and off-range.
- Construction for new roads and trails could extend over several years. Where construction overlaps spatially with locations that have natural resource value or recreational and public use value, timing restrictions may be warranted. Construction activities (e.g., noise and traffic generating) should be minimized during times that are sensitive for a particular resource.
- For future enhancements involving off-range areas (such as a wide traffic bridge linking DTA-West to TFTA), proposals should, to the extent possible, avoid private or municipal land, State land conveyed or permitted for specific purposes to other entities (such as cabin sites for year-round commercial recreational use), and locations with existing mineral claims, leases, or active operations. Specifically, USAG-FWA already holds an existing easement between these two ranges that could provide an alignment for a more robust connection. Any future link between these two areas would require coordination with the selected alignment of the new Northern Rail Extension. Future proposals involving adjacent off-range lands should involve ADNR in early pre-planning.

3.7.10.3.2 No Action

Under the No Action Alternative, ground maneuver training would continue using existing designated portions of the training lands at current levels of use. No impact to current land use, access, or recreational use would result.

3.7.10.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals for EGMS are provided above in Section [3.7.10.3.1](#).

3.7.11 Infrastructure and Transportation

Transportation routes, electricity, water, sewage, and natural gas are necessary to support various missions as well as to maintain the residences of military personnel. Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for additional information regarding resources throughout this region.

3.7.11.1 Affected Environment

INFRASTRUCTURE

Electrical Transmission

In 2007, a 50-year contract was awarded to Doyon Utilities for assumption of ownership, operation, and maintenance of the electric power generation and distribution systems, central heat and heat distribution systems, natural gas distribution systems, potable water distribution systems, and wastewater collection systems of USAG-AK facilities, including JBER, Fort Wainwright, and Fort Greely. Aurora Energy serves as a subcontractor for the operation of electrical and heat utilities and power generation assets. In addition to the three installations listed above, the contract includes three remote sites: Black Rapids, Bolio Lakes, and YTA.

An extensive existing system supplies facilities within the proposed EGMS training area. The majority of this infrastructure is within the facilities at JBER, Fort Wainwright, Eielson AFB, and Fort Greely.

YTA is supplied with power from GVEA and by the Eielson AFB power plant (GVEA 2011). Electrical distribution lines extend northeast into and around the Chena River Research Site and along primary roads within the training area. Where overhead power is not available, constant-run generators are used for power generation.

Electric power distribution within DTA is limited to the area east of the Delta River. Even within the area east of the Delta River, not all range facilities have electric power. DTA falls within the GVEA service area.

Currently no commercial power is available in TFTA. GVEA's Northern Intertie is routed along the northwestern and northern sections of TFTA (GVEA 2011).

Water Supply and Wastewater Treatment

Doyon Utilities has assumed ownership, operation, and maintenance of the potable water distribution systems and wastewater collection systems of USAG-AK facilities, including JBER, Fort Wainwright, and Fort Greely. In addition to these three installations, the contract includes three remote sites: Black Rapids, Bolio Lakes, and YTA. Regulations covering water appropriation are contained in the AAC at 11 AAC 93.010-970. Neither the Alaska Constitution nor the Water Use Act differentiates between surface and groundwater uses.

Natural Gas and Oil Pipelines

A total of 2.25 miles of natural gas pipelines are present within the proposed maneuver space areas within YTA. Doyon Utilities has assumed ownership, operation, and maintenance of the central heat, heat distribution, and natural gas distribution systems of USAG-AK facilities, including JBER, Fort Wainwright, and Fort Greely. Aurora Energy serves as a subcontractor for the operation of heat utilities assets. In addition to the three installations listed above, the contract includes three remote sites: Black Rapids, Bolio Lakes, and YTA.

TRANSPORTATION

Roads, Bridges and Trails

There is a bridge in the YTA on Manchu Lake trail within the maneuver areas proposed action area. Approximately 83 miles of roads are present within the Maneuver Areas Proposed Action boundaries. Nearly all of these roads fall within the current YTA, with one road within DTA. Individual roads and their distances and names are presented in [Table 3-77](#).

Table 3-77. Roads in Maneuver Areas

Project Area	Miles	Road Name
Maneuver Areas Donnelly	0.71	Old Richardson Highway
Maneuver Areas Yukon	12.84	Beaver Creek Road
Maneuver Areas Yukon	17.22	Brigadier Road
Maneuver Areas Yukon	1.25	DMPTR Road
Maneuver Areas Yukon	6.53	Johnson Road
Maneuver Areas Yukon	2.13	Loop Road
Maneuver Areas Yukon	1.57	LZ Access Road
Maneuver Areas Yukon	6.09	Manchu Road
Maneuver Areas Yukon	9.90	North Beaver Creek Road
Maneuver Areas Yukon	12.87	Quarry Road
Maneuver Areas Yukon	6.21	Skyline Road
Maneuver Areas Yukon	5.47	Transmitter Road

Key: N/A=not applicable.

Approximately 155 miles of trails are present within the Maneuver Areas Proposed Action boundaries. These trails fall within the current YTA, DTA, and TFTA. Individual trails and their distances and names (where available) are presented in [Table 3-78](#).

Table 3-78. Trails in Maneuver Areas

Project Area	Miles	On Facility	Trail Name
Maneuver Areas Donnelly	14.60	Donnelly Training Area	N/A
Maneuver Areas Donnelly	6.64	Donnelly Training Area	Winter Trail
Maneuver Areas Tanana Flats	0.01	Tanana Flats Training Area	N/A
Maneuver Areas Tanana Flats	15.65	Tanana Flats Training Area	Bonnifield Trail
Maneuver Areas Tanana Flats	68.61	Tanana Flats Training Area	N/A
Maneuver Areas Tanana Flats	2.91	Tanana Flats Training Area	Tractor Trail
Maneuver Areas Yukon	38.65	Yukon Training Area	N/A
Maneuver Areas Yukon	7.55	Yukon Training Area	Tractor Trail

Key: N/A=not applicable.

Source: ADNR 2009-2, ADNR 2009-3.

Rail

Railroad infrastructure includes the Alaska Railroad Northern Rail Extension Project which is currently scheduled for completion in August 2014.

3.7.11.2 Impact Assessment Methodology

The general methodology for evaluating infrastructure and transportation is described in Section [3.2.11.2](#).

3.7.11.3 Environmental Consequences

3.7.11.3.1 Proposed Action

TRANSPORTATION

Within the current study area, there are 60 miles of existing road and 155 miles of trail. Extensive rail access is planned for these areas with new rail lines are included in the Access to Joint Tanana Military Training Complex and the Denali Park Passenger Train Turnaround Track. The Northern Rail Extension project would construct a new line between North Pole and Big Delta (ADOT&PF 2010-1). Despite this infrastructure, there is a current lack of accessibility due to limited access roads within training areas and intervening areas (including Soldier training areas in TFTA, DTA, and YTA). Environmental conditions prevent access to transiting vehicles year-round.

This proposal would provide year-round accessibility, internal circulation, and enhanced maneuver space to support brigade-level events with battalion-size training occurring in TFTA, YTA, and DTA. Brigade units would interact with JIIM components in order to provide a realistic training environment. Siting considerations for additional access would include minimizing the cost of additional roads by using existing roadway corridors where possible.

In general, to meet mission goals improvements to internal road networks, and supporting infrastructure and expansion of maneuver space, along with the integration of the proposed ISBs within the JPARC are important actions to be undertaken. Specific alternatives for direct access to DTA, YTA, and TFTA are not developed to the point where specific decisions or plans can be made.

The Richardson Highway runs through this project area and is approximately 368 miles in total length, providing a north-south connection between Fairbanks and Valdez. The Richardson Highway provides access to five other Alaskan highways. Year 2030 traffic volumes are forecast along most segments of the Richardson Highway between 1,500 and 4,500 AADT. Based on these forecast traffic volumes, a qualitative planning level assessment of the Richardson Highway by ADOT&PF revealed no major roadway capacity constraints over the near- and long-term (ADOT&PF 2010-1).

INFRASTRUCTURE

Most permanent electrical infrastructure is within the facilities at Fort Wainwright, Eielson AFB, and Fort Greely. In the past, if Fort Greely electrical loads exceed the 2.5-MVA transformer rating, diesel generators were used to meet peak loads. Doyon Utilities recently constructed a new 138 kV Switching Station, new 138 kV Substation with 20 MVA transformer to increase energy capacity at Fort Greely (Doyon 2011-1).

The Fort Greely Potable Water Distribution System consists of wells, treatment equipment, pumps, ancillary structures, fire hydrants, valves, meters, and piping. Potable water is supplied by an underground aquifer that is recharged from the Delta River and Alaskan Mountain Range winter snowmelt. There are currently nine raw water supply wells for all potable and non-potable water requirements with no outside ties to the city of Delta Water System. There are approximately 4.6 miles of pipe within the system. The wastewater system at Fort Greely consists of lagoons or septic tanks. All wastewater generated on FGA is collected and treated on FGA. The average daily flow of wastewater varies between 120,000 to 180,000 gallons per day (Doyon 2011-1).

Fort Wainwright has a coal-fired plant that generates steam and electricity to meet the heating and electricity demands of the base. The plant currently has 20 megawatts electrical (MWe) installed capacity, but only 18 MWe effective capacity. There is currently a plan to double power generation

capacity at Fort Wainwright and wheel power to the other two military bases. Current plans also involve a major upgrade to the electrical and boiler control systems at the existing plant (Doyon 2011-2).

Water wells are the source for all potable and non-potable water at Fort Wainwright. Fort Wainwright has 19 raw water supply wells, with two primary source wells for the water plant and two backup supply wells to the water plant. Five wells are classified as fire protection wells and provide water for fire protection use during a fire demand condition. The Fort Wainwright Wastewater Collection System includes lift stations, manholes, force mains, and gravity piping (Doyon 2011-2).

Within the ground training areas, electrical distribution lines extend northeast into and around the Chena River Research Site and the area east of the Delta River as well as along the northwestern and northern sections of TFTA. No commercial power is available in TFTA. Specific alternatives for electrical requirements for DTA, YTA, and TFTA are not developed to the point where specific decisions or plans can be made.

Within the project area there are 2.5 miles of natural gas transmission lines. When locations for additional roads, access points, maneuver space, and ISBs are determined, avoidance buffers and crossing points to prevent damage to pipeline are required.

3.7.11.3.2 No Action

No impacts on infrastructure and transportation would occur under the No Action Alternative.

3.7.11.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals for EGMS are provided above in Section [3.7.12.3.1](#).

3.7.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.7.12.1 Affected Environment

The location of the proposed action includes TFTA, the expansion of YTA, and the expansion of DTA. The three training areas are within the FNSB, the Denali Borough, and the Southeast Fairbanks Census Area. Therefore, the ROI for the proposed action includes the portions of these two boroughs and the census area within the ground maneuver areas and the surrounding communities. The affected environment for the EGMS proposed action is similar to the area described in Section [3.2.12.1](#), Affected Environment, with the exception of the population under the airspace.

3.7.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.7.12.3 Environmental Consequences

3.7.12.3.1 Proposed Action

This proposal has a composite footprint of just over 1.2 million acres (1,892 square miles), entirely on military land. The proposal is entirely ground-based, and in itself, does not involve hazardous operations

requiring changes to, or use of, airspace; thus, no economic impacts associated with commercial or general aviation are anticipated. The proposal does involve construction of training roads and trails and some ORV operations. In general, construction activities are anticipated to result in temporary and beneficial socioeconomic impacts during the construction phase. Based on the economic activity in the region, it is anticipated that labor and supplies would be provided by the surrounding areas. The direct and indirect socioeconomic impacts associated with this action are dependent on the construction expenditures, which are unavailable at this time, but should be taken into consideration during the siting criteria.

Within TFTA, any changes in recreational or public access (described in Section [3.7.10.3.1](#)), could have economic impacts. Specific alternatives for direct access to DTA, YTA, and TFTA have not yet been developed to the point where a specific decision can be made; thus a thorough quantitative economic analysis cannot be performed. However, based on a review of environmental consequences for other resources, potential for high or significant adverse impacts related to the action would be mitigated based on SOPs, BMPs, and continuation of mitigation measures used previously for the Alaska MOAs. Thus, the potential for significant economic impacts are anticipated to be low.

3.7.12.3.2 No Action

Under the No Action Alternative, socioeconomic resources would remain as described under baseline conditions.

3.7.12.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.7.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.7.13.1 Affected Environment

The existing training areas of DTA, TFTA, and YTA are being considered programmatically for the location of EGMS. TFTA and YTA are located within a State nonsubsistence area and a Federal nonrural area, as depicted in [Figure 3-23](#) (ADFG 2011-10; USFWS 2010-1). USAG-FWA does allow access to these ranges for recreational use (described in Section [3.7.10](#)); however, resources are not managed or given subsistence priorities. DTA is also within a State nonsubsistence area; however, Federal subsistence harvests are permitted. DTA is also within GMU 20D, and rural communities participating in subsistence under Federal regulations in the vicinity of DTA include Big Delta, Delta Junction, Healy Lake, and Dry Creek. Within this unit, rural residents may engage in subsistence hunting for bison, black bear, brown bear, moose, sheep, coyote, fox, hare, lynx, wolf, wolverine, grouse, and ptarmigan (USFWS 2010-1). For fishing, the ROI is located in the Yukon-Northern subsistence area, which allows for the harvesting of a variety of fish species, including salmon (USFWS 2010-2). Information on subsistence harvests on Federal public land near these communities is not available. More-detailed information on species and habitats in the ROI is provided in Section [3.7.8](#), Biological Resources.

3.7.13.2 Impact Assessment Methodology

The general methodology for evaluating subsistence is described in Section [3.1.13.2](#). As a programmatic proposed action, that methodology is used as a guideline for further analysis requirements and siting criteria.

3.7.13.3 Environmental Consequences

3.7.13.3.1 Proposed Action

As described in Section [3.7.13.1](#), areas of TFTA and YTA that are accessible to the public are not managed for subsistence resources and Alaska residents are not given priority access to subsistence resources. Therefore, the siting of an enhanced ground maneuver area within either of these areas is not expected to affect subsistence activities. However, such action may affect recreational access and public access, which are described and considered in Section [3.7.10](#). The proposal for an enhanced maneuver area in DTA may impact subsistence resources. Additional consideration or development of the proposal should address the accessibility of the ground maneuver area to the public, the avoidance of traditional use areas for nearby communities, and the monitoring of impacts of activities within a proposed maneuver area on the population and distribution of subsistence wildlife and vegetation.

3.7.13.3.2 No Action

Under the No Action Alternative, subsistence activities would continue as currently practiced and as described in Section [3.7.13.1](#).

3.7.13.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals for EGMS are provided above in Section [3.7.13.3.1](#).

3.7.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.7.14.1 Affected Environment

The affected environment for the EGMS proposal includes two boroughs and two census areas in which some portion of the proposal footprint is located. [Table 3-79](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children for areas comprising the proposal area. Note that the table characterizes existing population groups in the affected environment at a general level of detail and does not indicate whether the proposal would create an environmental justice effect.

The average percent minority in the proposal area ranges from 11.6 percent in Denali Borough to 78.2 percent in Yukon-Koyukuk Census Area, compared to the 35.9 percent average for the State of Alaska. The average percent low-income ranges from 6.1 percent in Denali Borough to 24.1 percent in Yukon-Koyukuk Census Area, compared to 9.6 percent for the State of Alaska. The average percent Alaska Native ranges from 3.6 percent in Denali Borough to 71.4 percent in Yukon-Koyukuk Census Area, compared to a 14.8 percent average for the State. The average percent of children ranges from 22.5 percent in Denali Borough to 27.8 percent in Yukon-Koyukuk Census Area, compared to the 26.4 percent average for the State.

Table 3-79. Minority Population, Low-Income Population and Children by Area

Area	Total Population	Percent Low-Income	Percent Minority	Percent Alaska Native	Percent Children
Fairbanks North Star Borough	97,581	8.0	25.9	7.0	25.6
Denali Borough	1,826	6.1	11.6	3.6	22.5
Southeast Fairbanks Census Area	7,029	11.6	21.3	11.5	26.3
Yukon-Koyukuk Census Area	5,588	24.1	78.2	71.4	27.8
State of Alaska	710,231	9.6	35.9	14.8	26.4

Note: Except for the low-income data, which are based on the 2005-2009 American Community Survey conducted by the Census, numbers represent 2010 decennial Census data.

Source: USCB 2010-1, 2010-2.

3.7.14.2 Impact Assessment Methodology

General methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#). For the six programmatic proposals addressed in Sections [3.7.14.3](#) through [3.12.14.3](#), the environmental consequences discussion for environmental justice briefly discusses potential impacts at a general level of detail, consistent with what is currently known about each programmatic proposal. It then identifies siting and operational criteria that should be considered when developing the proposal to a more definitive level. In addition, environmental justice topics requiring further study during the tiered environmental process are identified, when appropriate.

3.7.14.3 Environmental Consequences

3.7.14.3.1 Proposed Action

Based on a review of environmental consequences for other related resources, potential for significant adverse impacts could, in many cases, be reduced based on application of siting and operational criteria, SOPs, BMPs, and mitigation measures used previously; however, further study would be needed in some cases and is identified in the 13 resource sections above.

Siting or use of an enhanced maneuver area in DTA could adversely affect communities with high dependence on subsistence resources, including Healy Lake and Dry Creek. Section [3.7.13.3.1](#) identified the following subsistence-related criteria for consideration: accessibility of the ground maneuver area to the public, avoidance of traditional use areas for nearby communities, and monitoring impacts of activities within a proposed maneuver area on the population and distribution of subsistence wildlife and vegetation.

Consideration of the siting and operational criteria below could further reduce the potential for disproportionately high and adverse environmental or health effects related to possible subsistence, cultural resources, and other impacts.

- To reduce potential for both subsistence impacts and any related disproportionately high and adverse environmental or health effects, consider siting an enhanced maneuver area in either YTA or TFTA; these training areas are located in a Federal nonrural area and State nonsubsistence area and could reduce subsistence impacts in DTA.
- If adverse impacts on traditional cultural resources or Alaska Native activities in or near the enhanced maneuver area are identified, develop case-specific mitigations in compliance with

NHPA, Section 106, and the DoD American Indian and Alaska Native Policy (DoD 1998) that can be evaluated during the tiered environmental process (i.e., to reduce cultural resources impacts and any related effects on Alaska Natives).

- If tiered environmental documents identify adverse impacts to human populations from military operations in areas with a meaningfully higher percent of either minority or low-income populations compared to the general population, or could adversely affect children, additional mitigations may be needed to reduce potential for disproportionate effects. For example, Southeast Fairbanks Census Area and Yukon-Koyukuk Census Area both have a higher percentage of low-income population than the State of Alaska overall, especially Yukon-Koyukuk Census Area, which has the highest percentage of low-income population of any borough or census area in the JPARC study area (22.7 percent—more than twice that of the State of Alaska overall). In addition, Yukon-Koyukuk Census Area has more than twice the percentage of minority population compared with the State of Alaska (78.2 percent compared to 35.9 percent) (see [Table 3-79](#)).

3.7.14.3.2 No Action

Under the No Action Alternative, no additional roads or circulation routes would be constructed and ground maneuver operations would continue to occur as presently conducted. No disproportionately high and adverse environmental or health effects would occur and no siting criteria or other measures are recommended.

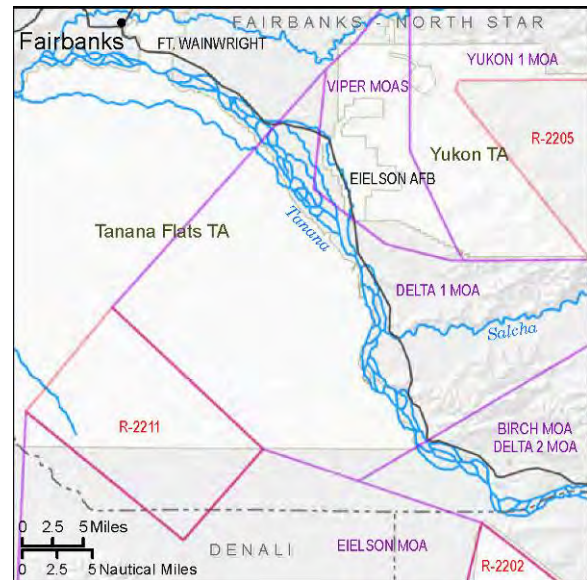
3.7.14.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals for EGMS are provided above in Section [3.7.14.3.1](#).

3.8 TANANA FLATS TRAINING AREA ROADWAY ACCESS (PROGRAMMATIC)

The primary purpose of studying proposed new roadway access within TFTA is to provide year-round training access to the advantageous training areas on higher ground away from the Tanana river basin and important use and training areas in TFTA, such as the Blair Lakes Impact Area. Besides year-round access, other proposed facilities and additional enhanced ground maneuver actions, this project would provide better internal circulation, expanded maneuver areas, ISBs and supporting infrastructure.

The affected environment includes areas within TFTA east of the Blair Lakes Impact Area. These areas are currently used for military ground training when weather conditions permit. Noise sources in the affected area include munitions firing and detonation, ground vehicle maneuvers, and aircraft training activities.



The proposal is entirely on military land within the TFTA. (Refer to the map above.) The proposal is entirely ground-based and involves construction of a new road to handle a mix of military vehicle types and weights. Based on this, the potential for significant impacts on airspace management, noise, and flight safety is expected to be low.

3.8.1 Airspace Management and Use (No Analysis Needed)

This proposal does not include any aviation activities and would therefore not result in any impacts on the management and use of the existing airspace environment discussed in the other proposals. Therefore, this resource is not further analyzed for this proposal.

3.8.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.8.2.1 Affected Environment

The affected environment includes areas within TFTA east of the Blair Lakes Impact Area. These areas are currently used for military ground training when weather conditions permit. Noise sources in the affected area include munitions firing and detonation, ground vehicle maneuvers, and aircraft training activities.

TFTA is used for several types of military training, including weapons firing and detonation, ground vehicle maneuvers, and aircraft training activities. When training is not under way, natural sounds are dominant.

3.8.2.2 Impact Assessment Methodology

Construction noise levels were assessed using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (DOT 2006). Noise levels at various distances from the construction activity were quantified using the metric DNL. Maximum noise levels generated by military vehicles transiting

the completed access road were also listed. Because the action is assessed programmatically, the impacts of expected noise levels are not assessed against a specific set of locations, but rather against types of locations, such that the information can be used for route planning purposes.

3.8.2.3 Environmental Consequences

3.8.2.3.1 Proposed Action

Under the proposed action, access roads would be constructed in TFTA. Heavy equipment would be the primary noise source during construction. Noise levels generated by several common pieces of construction equipment are listed in [Table 3-80](#).

Table 3-80. Construction Equipment Noise Levels

Equipment	L_{max} at 50 Feet (in dB)
Backhoe	78
Ground Compactor	83
Crane	81
Dozer	82

Key: L_{max}=maximum noise level; dB=decibel.

Source: DOT 2006.

Construction is expected to occur over an extended timeframe, and at any one time only one or two pieces of heavy equipment would be expected to be operating in any one location. Noise levels were calculated using the FHWA's Roadway Construction Noise Model (DOT 2006) for a scenario in which all the equipment listed in [Table 3-80](#) is operating simultaneously at one construction site (see [Table 3-81](#)). Noise levels would decrease to below 65 dB DNL at less than 400 feet from the edge of the site. Noise generated by construction equipment would be temporary and localized, lasting only the duration of the construction project and limited to the area in the immediate vicinity of the road being constructed.

**Table 3-81. Noise Levels at Varying Distances
from Construction Activity**

Distance from Site Edge (in feet)	DNL (in dB)
100	76
200	70
300	66
400	64
500	62

Key: DNL=day-night average sound level; dB=decibel.

Source: DOT 2006.

Noise levels generated by tactical vehicles typical of those that could use the access roads once they are complete are listed in [Table 3-82](#). Noise generated by vehicles using the access roads would be intermittent, and would affect the area immediately surrounding the road.

Table 3-82. Tactical Vehicle Noise Levels

Type	Distance (feet)	Speed (mph)	Noise Level (dB)
Stationary Stryker	20	0	78
Moving Stryker	60	50	85
Bradley Fighting Vehicle	98	20	80

Key: dB=decibel; mph=miles per hour.

Source: USARAK 2004-1.

3.8.2.3.2 No Action

Under the No Action Alternative, the access roads would not be constructed and ground maneuvers would continue to be conducted as they are currently.

3.8.2.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.8.3 Safety

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.3.

3.8.3.1 Affected Environment

FLIGHT SAFETY

The activities identified for this proposal do not include any changes to the use or structure of the existing airspace associated with the programmatic alignments for the TFTA Access Road. The flight safety considerations for the airspace overlying portions of this land area are as discussed in Section [3.1.3](#).

GROUND SAFETY

For this alternative, the environment affected by activities involved in range safety and control, UXO and munitions safety, public access control, and fire and emergency response would not differ from that previously described for RLOD Alternative A in Section [3.2.3.1](#).

3.8.3.2 Impact Assessment Methodology

FLIGHT SAFETY

The methodology for flight safety impacts assessment addressed in Section [3.1.3.2](#) was used, as appropriate, for the airspace activities conducted in the areas overlying the JAGIC proposed areas.

GROUND SAFETY

The impact assessment methodology is the same as that described in Section [3.2.3.2](#).

3.8.3.3 Environmental Consequences

3.8.3.3.1 Proposed Action

GROUND SAFETY

Range Safety and Control – There are no environmental impacts associated with range safety and control for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Unexploded Ordnance and Munitions Safety – There are no environmental impacts associated with UXO and munitions safety for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Public Access Control – There are no environmental impacts associated with public access control for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Fire and Emergency Response – There are no environmental impacts associated with fire and emergency response for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

3.8.3.3.2 No Action

Under the No Action Alternative, year-round access would not be provided and therefore emergency response would continue as under existing conditions. Improved emergency response capabilities would not occur. No other impacts on public health and safety would occur under the No Action Alternative.

3.8.3.4 Considerations for Future Planning

No measures to reduce impacts on ground safety are identified for this proposal.

3.8.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.8.4.1 Affected Environment

The access roads for this proposed action are all located in TFTA, which is located in FNSB. The affected areas for this proposed action are not within the nonattainment or maintenance portions of the borough. Table B-12 in Appendix B, Section B.4.3, provides a summary of the estimated 2008 annual emissions for FNSB.

3.8.4.2 Impact Assessment Methodology

Currently, this action is in its developmental stages and sufficient data is not available to analyze air quality impacts. Once sufficient data is available, the project air quality analysis will evaluate construction and operational emissions that would occur from the proposed construction and utilization of access roads in TFTA in accordance with the methodology described in Appendix B, Section B.4.5. The common approach is to assess the emissions for the worst-case scenario (the longest proposed access

road), and to use this information as an indication of the impacts from other options that are being considered. Since the affected project region is in attainment of all NAAQS, the PSD new major source threshold of 250 tons per year of each pollutant will be used as an indicator of significance or nonsignificance of projected air quality impacts.

PSD CLASS I AREA IMPACT ANALYSIS

The closest PSD Class I area to TFTA is Denali National Park, which is approximately 40 miles from TFTA. Due to the proximity of the proposed action to a pristine PSD Class I area, the potential for proposed activities to affect visibility within this area will need to be analyzed.

3.8.4.3 Environmental Consequences

3.8.4.3.1 Proposed Action

Air quality impacts of construction activities related to the proposed TFTA access roads would occur from (1) combustive emissions due to the use of fossil fuel-powered equipment, and (2) fugitive dust emissions (PM₁₀ and PM_{2.5}) due to the operation of equipment on exposed soil. Increases in emissions due to changes in operations related to construction of TFTA access roads would occur primarily from combustive emissions due to the use of fossil fuel-powered equipment.

Operational information needed to calculate air emissions resulting from the proposed construction activities associated with the access road action includes the following:

- The type, horsepower, and daily and annual usage rates of fossil fuel-powered equipment used to construct the roads associated with the proposed action;
- The usage of water trucks during construction for dust control;
- The surface type, length, and width of the proposed roads; and,
- The distance that the trucks would travel to the materials and dumping sites.

Operational information needed to calculate the air emissions resulting from the utilization of the proposed Tanana Flats access roads includes the type, horsepower, and daily and annual usage rates of fossil fuel-powered equipment associated with increased training activities for the proposed action.

The emissions factors needed to derive the construction emission rates are found in *Compilation of Air Pollution Emission Factors* (EPA 1995) and in emissions inventory data produced by two mathematical models: OFFROAD2007 for off-road construction equipment (ARB 2006-1), and EMFAC2007 for on-road vehicles (ARB 2006-2).

Emission reduction strategies that can be incorporated during construction of the roadways include the following:

- Use water trucks to keep areas of vehicle movement damp enough to minimize the generation of fugitive dust.
- Minimize the amount of disturbed ground area at a given time.
- Minimize ground-disturbing activities in proximity to the construction area boundary.
- Discontinue proposed ground-disturbing activities within 3 miles upwind of the construction area boundary when winds exceed 25 miles per hour or when visible dust plumes emanate from the site and then stabilize all disturbed areas with water application.

- Designate personnel to monitor the dust control program and to increase dust suppression measures (e.g., watering), as necessary, to minimize the generation of dust.

3.8.4.3.2 No Action

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations in TFTA. Therefore, the No Action Alternative would not result in any new air quality impacts.

3.8.4.4 Considerations for Future Planning

No measures to reduce impacts are identified for on ground safety are identified for this proposal.

3.8.5 Physical Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5.

3.8.5.1 Affected Environment

TOPOGRAPHY

TFTA is located within a broad depression known as the Tanana-Kuskokwim Lowland and is bordered to the south by the Alaska Range. Topography in the area of the proposed action gradually increases in elevation from north to south, with elevations ranging from just over 850 feet MSL in the vicinity of the Blair Lakes to just under 600 feet MSL where all proposed road alignments reach the Northern Rail Extension Tanana River Crossing. Notable physiographic features in the area include three terraces in the vicinity of Blair Lakes, the easternmost of which is Hill 1406, and the Tanana River, which forms the eastern and northern boundaries of TFTA.

GEOLOGIC HAZARDS

TFTA is located in an area that has been affected by earthquakes generated by the Denali Fault and is in a region classified by the USGS as moderate to high for earthquake hazard potential (USGS 2002). Seismic activity near TFTA is associated with an area known as the Fairbanks Seismic Zone, which experiences an average of five to six earthquakes per year, and micro-earthquakes are frequently felt. In November 2002, a magnitude 7.9 earthquake (the largest recorded in the region, ground movement being felt from Fairbanks to the Kenai Peninsula south of Anchorage), with an epicenter approximately 90 miles south of Fairbanks, resulted in minor to moderate damage to roads, runways, and some buildings in TFTA (USARAK 2004-1). In addition to the major Denali Fault, several smaller, localized faults are close to the proposed action, including the Mystic Mountain and Healy Faults (GSA 1993).

SOILS

In general, soils on TFTA were formed from various unconsolidated materials, with deposits varying from coarse gravel nearest the Alaska Range at the heads of alluvial fans to sand and silt at alluvial fan bases in northern portions of the training area. Soils containing coarser sediments on the upper fans are generally more well-drained than the fine-grained sediments found in lower alluvial fan areas (USARAK 2004-1).

The road alignments for the proposed action cross over multiple soil types, each of varying characteristics and considerations. Full soil coverage data are not available for the entire length of all road alignments for that portion of the area of the proposed action running parallel to the Tanana River, but the majority of soil types to be encountered in the Project Area can be addressed. Soils nearest to Blair Lakes and the

associated uplands are composed of residual weathered soils from the surrounding hills on upper slopes, and retransported deposits on middle and lower slopes. In the lowlands in and around Dry Creek, soils are formed from alluvial fan deposits, riverbed deposits, and material from dissected terraces associated with past glacial activity. Progressing northeast toward the Tanana River, soils are dominated by abandoned floodplain deposits with substantial amounts of lowland loess and organic deposits; flat bogs can be prevalent. In the lowlands closest to the river, soils are composed of abandoned floodplain riverbed deposits with thin, fine-grained overbank deposits (USACE 1999).

[Table 3-83](#) provides characteristics of the soil types commonly found in the Project Area. Those soil types, generally speaking, are highly organic, wet, cold soils, which are frost-free for a period ranging from 80 to 120 days per year. Many of the soil types present are hydric, thus prone to ponding, but few are prone to flooding; a fair number of soils are 12 inches or less from the high water table. Several of the soil types found in the Project Area are also susceptible to wind and water erosion, especially those at slopes of three percent or higher (USDA 2006).

PERMAFROST

Much of the land area on TFTA is underlain by continuous or discontinuous layers of permafrost. The presence of permafrost is often a function of vegetative cover, topography, elevation, and local soil type; on TFTA, permafrost is not found in areas closest to and below rivers and lakes, but is commonly found where there is no surface water or actively circulating groundwater. The active permafrost layer can be found at only 1 foot below the surface in some places, but can extend to 23 to 50 feet in others. TFTA is experiencing widespread permafrost degradation (estimated at over 40 percent of the total land area), which is expressed on the surface as various thermokarst features. Land area covered by the proposed action is underlain by variable permafrost conditions, ranging from continuous (90 percent and greater frozen area) to unfrozen (less than 10 percent permafrost). Permafrost is largely continuous nearest to Blair Lakes Impact Area, but permafrost conditions become highly variable along the courses of the four proposed road alignments. Through the middle portions of all road alignments, permafrost is likely continuous and ice wedge polygons may be evident in some areas. Close to the Tanana River and along the course of the Alaska Railroad Corporation Service Road, permafrost conditions are either discontinuous (50–90 percent frozen) or unfrozen (USACE 1999).

3.8.5.2 Impact Assessment Methodology

Impact assessment methodology pertaining to the impacts of physical resources is described in Section [3.2.5.2](#).

3.8.5.3 Environmental Consequences

3.8.5.3.1 Proposed Action

The proposed action includes the construction of a road within TFTA, providing year-round training access to the Blair Lakes Impact Area. This action requires a road of eight miles or more, traversing from the Blair Lakes Impact Area to a connection with the Northern Rail Extension, in order to cross the Tanana River. Road direction would be roughly southwest to northeast; however, the path and alignment of the road is yet to be determined. The desired road surface would be a 35-foot-wide aggregate surface, sufficient to allow simultaneous passage of two Stryker vehicles, which have a gross vehicle weight of 18 to 20 tons or more, depending on equipment and armoring.

Table 3-83. Characteristics of Representative Soils Found in the Area of Tanana Flats Training Area Road Alignments

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
9	Histels	Flats on terraces, depressions on terraces, valleys	16 to 24	Water: slight Wind: slight	Negligible	Very poorly drained	None/ frequent	0	Yes	3.9	Black spruce woodland
20	Mosquito peat	Depressions on alluvial flats	14 to 31	Water: slight Wind: slight	High	Very poorly drained	Rare/ frequent	0	Yes	4.1	Black spruce and tamarack woodland
21A	Goldstream peat, 0 to 3 percent slopes	Floodplains, valleys	14 to 24	Water: slight Wind: slight	Negligible	Very poorly drained	None/ frequent	0 to 8	Yes	3.6	Black spruce woodland
22	Tanacross peat	Floodplains	10 to 28	Water: slight Wind: slight	High	Very poorly drained	Rare/ frequent	0	Yes	3.0	Black spruce woodland
25	Tanana silt loam	Terraces	16 to 47	Water: slight Wind: slight	High	Poorly drained	Rare/ frequent	0 to 12	Yes	5.2	Black spruce forest
39A	Nenana silt loam, 0 to 3 percent slopes	Stream terraces	–	Water: slight Wind: moderate	Low	Well drained	None/ occasional	>72	No	5.9	White spruce, quaking aspen, and paper birch forest
40B	Chatanika silt loam	Hills	12 to 39	Water: moderate Wind: severe	Very high	Poorly drained	None/ frequent	0 to 8	Yes	4.3	Black spruce forest
41B	Minto silt loam, 3 to 7 percent slopes	Hills	–	Water: moderate Wind: severe	Medium	Moderately well drained	None/none	4 to >72	No	12.6	Paper birch and white spruce forest
41C	Minto silt loam, 7 to 12 percent slopes	Hills	–	Water: severe Wind: severe	Medium	Moderately well drained	None/none	4 to >72	No	12.6	Paper birch and white spruce forest
44B	Steese silt loam, 3 to 7 percent slopes	Hills	–	Water: moderate Wind: severe	Medium	Well drained	None/none	>72	No	6.1	Paper birch, white spruce, and quaking aspen forest
44C	Steese silt loam, 7 to 12 percent slopes	Hills	–	Water: severe Wind: severe	Medium	Well drained	None/none	>72	No	6.1	Paper birch, white spruce, and quaking aspen forest

Table 3-83. Characteristics of Representative Soils Found in the Area of Tanana Flats Training Area Road Alignments (Continued)

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
44D	Steese silt likoam, 12 to 20 percent slopes	Hills	–	Water: severe Wind: severe	Medium	Well drained	None/none	>72	No	6.1	Paper birch, white spruce, and quaking aspen forest
44E	Steese silt loam, 20 to 30 percent slopes	Hills	–	Water: severe Wind: severe	High	Well drained	None/none	>72	No	6.1	Paper birch, white spruce, and quaking aspen forest
46C	Eutrocryepts, 7 to 12 percent slopes	Hills	–	Water: severe Wind: severe	Medium	Well drained	None/none	>72	No	9.8	Paper birch, white spruce, and quaking aspen forest
51B	Saulich peat, 3 to 7 percent slopes	Valley sides	14 to 24	Water: slight Wind: slight	Very high	Very poorly drained	None/ frequent	0 to 8	Yes	3.6	Black spruce forest with low shrubs and moss
66	Eielson fine sandy loam	Floodplains	–	Water: slight Wind: severe	Low	Moderately well drained	Occasional/ frequent	0 to 47	No	12.3	White spruce and balsam poplar forest
69	Typic Cryaquents- Eielson complex	Floodplains	–	Water: slight Wind: slight	Low	Poorly drained	Occasional/ frequent	0	Yes	13.9	White spruce and paper birch forest
70A	Volkmar-Richardson complex, 0 to 3 percent slopes	Stream terraces	–	Water: slight Wind: moderate	Low	Moderately well drained	None/ frequent	0 to >72	No	8.7 to 12.5	White spruce, black spruce, and paper birch forest
70B	Volkmar-Richardson complex, 3 to 7 percent slopes	Stream terraces	–	Water: moderate Wind: moderate	Low	Moderately well drained	None/ frequent	0 to >72	No	8.7 to 12.5	White spruce, black spruce and paper birch forest
71	North Pole- Mosquito-Liscum complex	Floodplains, depressions on alluvial flats	14 to 31	Water: slight Wind: slight to severe	Negligible to high	Very poorly drained	Rare/ frequent	0 to 8	Yes	4.1 to 11.9	Sedges, grasses, black spruce, and tamarack woodland

Table 3-83. Characteristics of Representative Soils Found in the Area of Tanana Flats Training Area Road Alignments (Continued)

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
72F	Eutrocryepts, 7 to 45 percent slopes	Escarpments on terraces	–	Water: severe Wind: severe	Medium	Well drained	None/none	>72	No	9.8	Paper birch, white spruce, and quaking aspen forest
212	Goldstream-Histels complex, 0 to 3 percent slopes	Floodplains, valleys	14 to 24	Water: slight Wind: slight	Negligible	Very poorly drained	None/frequent	0 to 8	Yes	3.6	Black spruce woodland
411B	Minto-Chatanika complex, 3 to 7 percent slopes	Hills	12 to 39	Water: moderate Wind: severe	Low to very high	Poor to moderately well drained	None/frequent	0 to 8	No	4.3 to 12.6	Black spruce, white spruce, and paper birch forest
411C	Minto-Chatanika complex, 7 to 12 percent slopes	Hills	12 to 39	Water: severe Wind: severe	Low to very high	Poor to moderately well drained	none/frequent	0 to 8	No	4.3 to 12.6	Black spruce, white spruce, and paper birch forest
452	Gilmore-Steese complex, 3 to 15 percent slopes	Backslopes, summits	–	Water: moderate Wind: severe	Medium	Well drained	None/none	>72	No	2.9	Black spruce, paper birch, white spruce, and quaking aspen forest

Source: USDA 2006, 2011.

Primary impacts associated with roadway construction would be increased potential for erosion during preliminary grading activities and subsequent soil exposure before application of roadbed and aggregate roadway material. Additionally, construction equipment activity adjacent to the roadway alignment presents a potential for increased soil degradation and subsequent erosion.

After construction of the access road, primary impacts on soils would be potential erosion from surface runoff, the degree of which would be a function of localized soil erosion characteristics. As noted in Section [3.7.5.1](#), soils in TFTA have a wide profile of erodibility, ranging from erosion resistant to highly erodible by both wind and water.

The assessment of potential impacts on soils operates on the assumption that road material (aggregate) and underlying roadbed material would be of a type and composition to allow the highest degree of permeability and as such would reduce surface water runoff/release of sediment to nearby waterways to minimal levels. Assessment of potential impacts also assumes that Stryker (and other) vehicles would not leave the road surface except in emergency circumstances. If Stryker vehicles should for any reason leave the road surface, potential impacts on soils would include: localized compaction, increased erosion/release of sediment to waterways, reduced soil strength, and vegetation disturbance, as described in Section [3.7.5.3.1](#). For Stryker maneuvers on unfrozen soils, no beneficial or adverse impacts are anticipated in areas where soil strength is high (on well-drained, gravelly or sandy soils), potentially adverse, but not significant impacts are expected on soils with moderate soil strength (wet or poorly-drained sand or silty soils), and significant impacts would be associated with soils having low soil strength (saturated or waterlogged sands, silts, and organic soils).

Significant impacts on permafrost could occur during road construction. Removal of upper soil layers or vegetative mat would lead to increased possibility of permafrost degradation and creation of thermokarst features, which in turn could result in the potential for subsequent damage to the roadway, largely from differential settling of underlying ground. As with soils, the extent and location of permafrost beneath the surface at TFTA and in areas of the proposed action is variable. Generally, permafrost is more likely to be found in areas closer to Blair Lakes Impact Area and less likely to be found in low-lying areas closest to the Tanana River and in the flat areas between Dry Creek and McDonald Creek.

No beneficial or adverse impacts would occur to permafrost subsequent to roadway construction, assuming that construction adheres to guidelines and engineering practices designed to ensure the stability of underlying permafrost: application of suitably insulated roadbed, use of (light colored) aggregate as roadway material, heat extraction, and general minimization of heat transfer to permafrost. Without proper construction techniques, increased heat transfer from the roadway could potentially lead to permafrost degradation and subsequent road surface instability.

The proposed road would be located within an area classified by the USGS as moderate to high for earthquake hazard potential. Structures and infrastructure on TFTA (including roads) experienced some damage as a result of a 7.9 earthquake in November 2002. Potential geologic hazards such as seismically-induced ground failure would be addressed through a standard, site-specific geotechnical investigation before road construction begins.

3.8.5.3.1.1 Site Selection Criteria and Best Management Practices

Roadway design would be consistent with EPA and State of Alaska Construction General Permit SWPPP Requirements as well as Fort Wainwright's SWPPP, in order to minimize runoff contamination. In addition, roadway construction would adhere to all applicable DoD and Army guidelines for protection of soils, prevention of soil erosion, and prevention of permafrost degradation. See Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, for information on how the Army manages

natural resources on Army lands in Alaska and ongoing measures that would apply to the proposed action.

Pre-planning for siting of new infrastructure or new activities at ranges or on training areas requires coordination with the USARAK IRO. The USARAK IRO and USAG-FWA Environmental Division review the range user's proposal and work directly with the (Air Force/proponent/user) to select a location that is suitable for the proposed purpose, while also considering a range of environmental, operations, and land use constraints. These considerations as well as information from the ITAM program would factor into site selection and specific restrictions or BMPs that the proponent must agree to follow. This includes periodic or post-activity assessments, restorative actions, and site clean-up.

3.8.5.3.2 No Action

Under the No Action Alternative, the TFTA access road would not be constructed and conditions would remain as described in Section [3.8.5.1](#).

3.8.5.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.8.5.3.1](#).

3.8.6 Water Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6.

3.8.6.1 Affected Environment

All potential alignments of the TFTA access road are in the Tanana River watershed and traverse Dry Creek and McDonald Creek. Dry Creek is a meandering, braided stream in the general vicinity of alignments. Dry Creek loses its water as it traverses the alluvial fan and disappears before reaching the flats (USACE 1999). McDonald Creek is a thickly vegetated, meandering stream in the general vicinity of the alignments. The surface and groundwater meet State standards for water quality. The area is predominately covered by wetlands. There are numerous bogs, fens, and collapsed bog scars associated with thermokarstic topography, where melting permafrost has created irregular surfaces of marshy hollows and small hummocks. The general area where the TFTA access road would be located is covered by 65 percent wetlands. (This wetland coverage estimate is a composite of the estimates for all alignment corridors.) Owing to the potential for environmental damage, USARAK has since 2000 limited military maneuvering or other activities in TFTA to upland and certain wetland areas. Wetlands provide valuable benefits to the overall hydrologic regime by water retention, flood attenuation, aquifer recharge, and sediment/pollution retention.

3.8.6.2 Impact Assessment Methodology

The general methodology for evaluating water resources is described in Section [3.2.6.2](#).

3.8.6.3 Environmental Consequences

3.8.6.3.1 Proposed Action

The proposed action would have adverse impacts on surface water quality, primarily from sedimentation due to land disturbance during road construction, establishment of new or increased use of water

crossings, while allowing better access and increasing ground maneuver activity in the area surrounding the TFTA roadway access. By implementing the site selection criteria and BMPs in the following section, the potential adverse impacts on surface water quality could be reduced to not significant.

The proposed action would have potential adverse but not significant impacts on floodplains. Year-round access roads would require vehicle crossings of McDonald Creek and Dry Creek. By implementing the site selection criteria and BMPs in the following section, the impacts on floodplains could be reduced.

The construction of the new roads could impact the surface hydrology and alter the drainage patterns. Roads culverts can focus water flow into selected channels at while cutting off overland flow and flow through wetlands. The increase in flow in selected locations at culvert can have downstream impacts through the incision of the channel and streambank erosion. The decrease in overland flow and decrease water flow through wetlands can alter the hydrologic regime by decreasing flood retention of the watershed and decreasing the travel time of storm water runoff. Hydrologic investigations are needed to ensure that culverts installed along the proposed roads would not produce a discernable change in the hydrologic flow regime of the area.

The proposed action would have adverse impacts on wetlands, primarily resulting from the disturbance and filling of wetlands associated with building a road and increased maneuver activities as a result of the increase in access. The proposed action would utilize existing roads where possible and minimize impacts on wetlands and critical habitat. Nonetheless, in some portions of the training areas, wetlands are the predominant landscape feature (65 percent in the TFTA access road area). In the wetland-rich areas it would be difficult to avoid filling or converting wetlands. To have year-round access, raised road beds would likely be required which may result in the filling and disturbance of wetlands and could alter wetland hydrology by cutting off wetlands from their water source. The filling of one portion of a wetland could have in the indirect effect of degrading wetland downstream of the filled wetland by altering the overall flow pattern of water through the wetland. Since the proposed action area would traverse wetland areas, the USAG-FWA Environmental Resources Division staff would need to request a Jurisdictional Determination by the USACE. The USACE will request a wetland delineation to be completed for the permit application. The USACE would recommend the type of wetland permit application to submit. As a condition for receiving these permits, USAG-FWA would comply with all permitting conditions designed to mitigate impacts on wetlands. By implementing the site selection criteria and BMPs in the following section, the impacts on wetlands could be reduced. However, detailed wetland surveys along the potential road alignment will be required to determine the significance of the potential adverse impacts of the proposed action on wetlands.

The following site selection criteria and BMPs would reduce the impacts on surface water quality, floodplains, and wetlands.

Surface water quality (sedimentation)

- Avoid designing roads and trails in the general direction of preferential water flow and at ground level.
- Design culverts to accommodate general local snowmelt runoff each spring and rainfall events throughout the year. As necessary, conduct hydrological investigations, improving road designs to minimize the alteration of the hydrologic regime that could occur by the concentration of surface water flows through culverts and the cutoff of overland flow and the cutoff of water flow through wetlands.
- Where possible, conduct vegetation clearing activities during the winter months when soils are frozen.
- Adhere to the SWPPP during construction of the roads for the enhanced vehicle maneuver access.

- Control sediment transport through the utilization of BMPs for erosion and sediment control which could include but is not limited to silt fencing, straw wattles, and stormwater retention/detention basins during construction.
- Keep all construction staging, fueling, and servicing operations at a minimum of 100 feet from surface waters.
- Employ SPPCP measures to prevent spills and effectively address cleanup strategies before potential spill contaminants could reach water resources.
- Stabilize all disturbed areas resulting from project construction using native vegetation to minimize erosion and subsequent sedimentation of wetlands and streams.

Floodplains and waterways

- Construct permanent low-water crossings (i.e., ingress and egress ramps) or other features at designated vehicular stream crossings to prevent bank erosion, widening of waterways and increased sediment in streams.
- Harden approaches to fords and ice bridges on anadromous creeks and rivers within training areas. Ensure that crossing would occur only at these approaches. Hardened approaches would reduce the amount of bank-side erosion and sedimentation occurring at crossings.

Wetlands

- Site new training roads and upgrades to existing routes to avoid construction in wetlands as much as practicable. Construction should remove the least amount of vegetation possible to avoid melting permafrost.
- Planning for alignments should consider both the direct impacts to wetlands through filling and disturbance and the indirect downstream impacts of altered wetland hydrology. Higher function wetlands that impact the overall hydrologic regime should have greater protection requirements than other wetlands to avoid altering the overall hydrologic regime. As part of the planning process a baseline assessment of wetland and stream water budgets should be conducted to evaluate the impacts to wetland hydrology and downstream impacts. Complete the delineation of wetlands prior to the final design of the TFTA access road. After wetland delineations have been completed the route design should be modified based on the wetland delineations to avoid impacting wetlands as much as possible.
- Narrow/confine trail widths in sensitive wetland habitats or when possible, widen trails to the upland direction to avoid wetland impact.
- Use of a hydro-ax within wetlands to reduce impacts on hydric soils and low-lying vegetation.
- Fill areas would be minimized for wetlands through site-specific design and limiting construction staging to upland areas.
- Maintain natural drainage patterns by the installation of culverts and road swales of adequate number and size to prevent flooding or excessive drainage of adjacent wetlands.
- No stockpiling of fill or construction materials in wetlands or waters of the United States without obtaining necessary permits. All equipment operation would be confined to the project footprint to prevent unnecessary damage to adjacent wetlands and vegetation.
- Conduct all additional avoidance, mitigation and compensation as required by terms and conditions in the USACE Section 404 permit.

3.8.6.3.2 No Action

The No Action Alternative would not provide for the construction and operation of a year-round access to provide maneuver space in TFTA. TFTA would continue to be used in the winter season when the impacts on surface water quality, floodplains, and wetlands are limited due to the protective snowpack over the vegetation and soil.

3.8.6.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.8.6.3.1](#).

3.8.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.8.7.1 Affected Environment

The TFTA Access Roads ROI, located in the southeastern portion of TFTA, occupies 653,748 acres south and west of the Tanana River, between the Wood and Tanana Rivers, and approximately 32 miles south of the city of Fairbanks.

MUNITIONS RELATED RESIDUE

This proposed action does not include live-fire training exercises.

CONTAMINATED SITES

There are no CERCLA Superfund sites listed on the National Priorities List in the TFTA Access Roads ROI. The ADEC CSP database lists one site within the TFTA Access Roads ROI: CSP Site 1136, Fort Wainwright (OU-1) Blair Lakes FTWW-024, which must be accounted for under all of the proposed road alignments. This site, which is listed as Cleanup Complete, is described as a number of drums, some in poor condition, containing POLs, tyrolene, glycol, and solvents (ADEC 2011). No sites are listed on the Army Environmental Restoration database for this ROI (USAEC 2010).

3.8.7.2 Impact Assessment Methodology

The general methodology for evaluating hazardous materials and waste is described in Sections [3.1.7.1](#) and [3.1.7.2](#).

3.8.7.3 Environmental Consequences

3.8.7.3.1 Proposed Action

GENERAL HAZARDOUS MATERIALS AND WASTE

The proposed action includes construction of a 35-foot wide aggregate surface road in TFTA, to allow year-round access to the Blair Lakes Impact Area. ADEC site #1136, Fort Wainwright (OU-1) Blair Lakes FTWW-024 is located near all proposed road alignments. The project proponents would utilize the range Institutional Control map to avoid ADEC site #1136 when siting the access road. If the site could not be avoided, established BMPs/SOPs, as identified in Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, would be followed. Impacts associated with potentially contaminated soils and spills of POLs would be similar to those described for the Enhanced Ground Maneuver proposal.

No beneficial or adverse hazardous materials related impacts would occur in association with this proposed action.

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

No beneficial or adverse hazardous materials related impacts would occur in association with munitions use, as training and operations would not include live fire. See Section [3.8.3](#), Safety, regarding potential UXO, including munitions residue, in areas of new construction.

3.8.7.3.2 No Action

Under the No Action Alternative, there would be no access road constructed for improved access to TFTA. Therefore, hazardous material related impacts would not occur.

3.8.7.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.8.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.8.8.1 Affected Environment

The lands for which the TFTA Access study area are proposed are managed by USAG-FWA. The proposed project study area occurs in the southeast corner of TFTA within the Tanana-Kuskokwim Lowlands ecoregion, which is characterized by gentle topography, patches of impermeable permafrost, and poor soil drainage (see Figure B-11 in Appendix B). This region can be broadly classified into two terrestrial ecosystems: forests and forest/scrub/bog communities. Within each of these ecosystems, a number of cover types exist, with vegetation forming a mosaic that reflects fire history, slope, and aspect; presence or absence of permafrost; and the variable climatic, physiographic, and geographic patterns throughout the region (Fort Wainwright 2008; USARAK 2006-2).

VEGETATION

Forest communities cover approximately 41 percent of TFTA. A predominance of forest communities occur as open spruce, spruce and broadleaf, and open and closed spruce forest within the study area for the TFTA Access ([Table 3-84](#)). Some species and details on the major land types present in TFTA are included below.

Forests

Forest cover in the TFTA Access study area is diverse and includes stands of spruce, hardwoods or broadleaf trees, and spruce/hardwood mixtures. Descriptions and general distribution of the primary species in each forest cover type present are as follows:

- White spruce (*Picea glauca*) – White spruce occurs on well-drained upland sites that lack permafrost.
- Paper birch (*Betula papyrifera*) – Paper birch is found primarily on upland sites and occurs on most exposures.
- Quaking aspen (*Populus tremuloides*) – Quaking aspen is common on south slopes, well-drained benches, and creek bottoms to an elevation of about 3,000 feet.

- Balsam poplar (*Populus balsamifera*) – Poplar stands are found along alluvial river deposits.
- Black spruce (*Picea mariana*) – Black spruce, the most common forest cover type, is found on cold, wet, poorly aerated and poorly drained sites, but also on dry sites that have gravelly soils and a thin organic layer.
- Spruce/hardwood – Spruce/hardwood forests support a mixture of the above species and predominate in lowland areas.

Scrub Communities

Scrub communities are dominated by shrubs and occur at high elevations, in small stream valley bottoms, and as “pioneer” vegetation on disturbed sites, including areas recovering from fire. Scrub communities are quite extensive on Fort Wainwright training lands and are primarily composed of alder (*Alnus* spp.), willow (*Salix* spp.), and dwarf birch (*Betula glandulosa* and *B. nana*).

Bogs and Fens

Vegetation in the flats is dominated by lowland bogs/fens and thermokarst forests. Thermokarst forests consist primarily of open, stunted birch and black spruce stands. Bogs/fens are dominated by low shrubs, herbs, and sedges.

Vegetation classes determined to be present within the TFTA Access study area are presented in [Table 3-84](#).

Table 3-84. Land Types Associated with the Tanana Flats Training Area Roadway Access Project Study Area

Spruce and Broadleaf Forest	Open and Closed Spruce Forest	Closed Mixed Forest	Open Spruce Forest/ Shrub/Bog Mosaic	Tall Shrub	Gravel Bars
Acres (hectares)					
15,749 (6,373)	7,805 (3,159)	2 (1)	6,103 (2,470)	728 (295)	240 (97)

Source: USGS 1991

WILDLIFE

Typical wildlife species that use the lowlands in the vicinity of the TFTA Access study area include moose, black bear, beavers, porcupines, and other small game; songbirds and raptors; and numerous waterfowl. The Tanana River serves as a major migratory waterfowl corridor through interior Alaska, as well as supporting anadromous fish and raptor nests. Bald eagle nests are common on the Tanana River and usually occur within 328 feet (100 meters) of a shoreline. Active nests are generally spaced from 12 to 16 miles apart. Data for known eagle nests are presented in Figure B-12. An estimated 2 million waterfowl migrate through TFTA and the Chena floodplain of YTA each spring, followed by 5 million birds in the fall (USARAK 2004-1). A variety of waterfowl species also use the numerous wetlands in TFTA for nesting. The entire area proposed as the TFTA Access study area was mapped as part of general waterfowl habitat and as the terminus of a major migration route (Figure B-15 in Appendix B, *Definition of the Resources and Regulatory Settings*). Estimates of waterfowl use in TFTA include 5,000 cranes, 10,000 geese, and 200,000 ducks during a breeding season. Several dozen trumpeter swans are also known to nest on the northern and western portions of TFTA (USARAK 2004-1). Individual pairs of swans may nest anywhere on TFTA in a given season. Waterfowl migration peaks in September. TFTA and YTA, as well as the overlying airspace, constitute a major migration corridor for sandhill cranes, with peak use in mid-May and September (USARAK 2004-1).

Medium to small furbearing mammals found on TFTA include wolverine, coyote, lynx, red fox, pine marten, wolves, snowshoe hare, and beaver. The lowlands of this region are also important as large ungulate breeding areas. Moose use the entire proposed TFTA Access study area for rutting in fall, calving in spring, and winter foraging, especially in high-snow-depth years (Figure B-16). Spring and summer moose densities increase two- to four-fold in TFTA including migrations from other watersheds and northern foothills of the Alaska Range (USARAK 2004-1). Caribou use approximately the southern half of the proposed TFTA Access study area for winter foraging (Figure B-13). Most ponds and lakes in TFTA do not support fish populations year-round, as they freeze in winter or when iced over and lack sufficient dissolved oxygen for fish to survive (USARAK 2004-1). However, a stocking program has allowed the public to use the lakes for angling. There are anadromous fish spawning and rearing streams and streams that support highly prized grayling year around.

Known habitats within the TFTA Access study area that are used by wildlife are presented in [Table 3-85](#).

Table 3-85. Wildlife Habitats Associated with the Tanana Flats Training Area Roadway Access Project Area

Caribou Winter Habitat	Moose Winter, Rutting, and Calving Habitat	Waterfowl General Habitat
Acres (hectares)		
13,950 (5,645)	30,628 (12,395)	24,729 (10,007)

Source: RDI 2005-1, 2005-2, 2005-3, 2005-4, 2005-5, 2005-6

3.8.8.2 Impact Assessment Methodology

The general methodology for evaluating biological resources is described in Section [3.1.8.2](#).

3.8.8.3 Environmental Consequences

3.8.8.3.1 Proposed Action

Direct impacts of ground clearing for road construction can result in vegetation and wildlife habitat losses as well as habitat fragmentation and restricting of access to important habitats for some species.

To reduce adverse effects, recommended siting criteria include minimizing construction in the following known sensitive habitats that occur within TFTA (acreages provided in [Table 3-84](#) and [Table 3-85](#)) (different avoidance seasons apply; refer to the biological resources mitigations table in Appendix G, *Biological Resources*, and to Figure B-13, Figure B-15, and Figure B-16 in Appendix B, *Definition of the Resources and Regulatory Settings*):

- Bogs and other wet habitats;
- Moose calving, rutting, migration, and winter habitat;
- Caribou winter habitat;
- Waterfowl general, and migration stopover/resting, and nesting areas;
- Anadromous fish spawning and rearing habitat; and
- Swan breeding habitat.

Additional siting criteria may be developed through the subsequent environmental review and permitting process. Once the road alignment(s) are chosen, expected long-term impacts include the loss of

vegetation and habitat on the area occupied by the 35-foot-wide aggregate surface plus berms or shoulders that are maintained. With the extent of wetland/bog vegetation habitats, there is a high likelihood that wetlands will have to be filled to provide a safe, all-weather roadbase. Fortunately, with the ubiquitous occurrence of wetlands in the area, the loss of a small percentage to roadbase should not adversely affect any specific plant community in the project area or the availability of this habitat type. Any likely effects of road construction on wetlands would be subject to regulatory review and approval as discussed under water resources. In addition to physical effects, road construction has the potential to interfere with the movement of waters by altering flow paths and concentrating runoff through culverts (see Water Resources Section [3.8.6](#)).

To give an idea of potential land disturbance for the project, an example of the TFTA Access Road alignment using a potential road disturbance of 300 feet wide (includes 35-foot road surface, shoulders, and buffers on each side) was analyzed for effects based on preliminary alignments. This example scenario would affect approximately 800 acres of vegetation classes and the associated wildlife habitat in the project study area. Potentially affected vegetation classes are given in [Table 3-84](#). Wildlife habitats potentially affected are presented in [Table 3-85](#).

Siting criteria to avoid bogs/wetlands and known sensitive seasonal wildlife habitats would be applied to minimize direct adverse effects to biological resources such as fish habitats and swan nesting areas.

Temporary effects would occur to vegetation cleared or trampled in areas needed for construction access, work areas, and equipment staging and storage. Areas disturbed but not used for the road corridor would be revegetated per standard BMPs under USAG-FWA policy on habitat restoration after construction projects (Appendix G, *Biological Resources*).

Noxious weed introduction and spread is a common impact of construction projects. USAG-FWA recommends monitoring sites soon after construction has ceased, monitoring source materials and keeping them weed-free, and requiring contractors to wash equipment before coming on to post (Fort Wainwright 2008). Additional vegetation management mitigation measures are presented in the biological resources mitigations table in Appendix G, *Biological Resources*.

Direct effects to wildlife habitat that cannot be avoided may include the fragmentation of larger habitats and migration routes from new road construction, which may impede access to important habitat such as breeding or spawning sites for some species. In general, the access road route that crosses the fewest stream channels (e.g., the currently proposed southernmost alignments) would be expected to affect the least amounts of moose and fish habitats. For wildlife areas of special concern, Army special interest management areas are designated on TFTA, which include the Tanana Flats Migratory Bird Special Interest Area (USARAK 2007-2). Training restrictions established for these areas would be expected to adequately protect sensitive wildlife from disturbance. Construction activities can also cause animal mortality, especially for smaller, young, and less mobile species. It will be important to work with ADFG and USFWS personnel to site road alignments to minimize damage and disturbance to biological resources.

Indirect effects to wildlife, including the addition of noise, dust, trash, weed spread, and potential spills, often accompany construction activities. SOPs and BMPs adopted by the Army provide methods to minimize such effects (Appendix G, *Biological Resources*). Long-term indirect impacts of providing all-season access to the training areas (currently only accessible during the months when the ground and water surfaces are frozen) would likely include the addition of vehicle and human presence to both new roads and existing training areas during the warmer months that had not occurred in the past. For the wildlife species present, the addition of the all-season access road may be disruptive to life cycle activities that occur in the project area. Within TFTA, these include duck and geese breeding, nesting and migration, and moose rutting and calving, and anadromous fish stream habitat.

No threatened or endangered species were identified as occurring in the proposed project area. Wildlife species may become habituated to noise and activities that they learn are not harmful and are generally expected to become tolerant in time to vehicles using an established road, especially given that the study area is an active training area currently supporting ground maneuvers. Because the locations and specifics of construction for the TFTA access road and the biological resources that would be affected by the project are not presently known, uncertainties about biological impacts exist for this programmatic project. However, due to the scale and extent of habitat disturbance required for road development as well as the facilitation of vehicle and human all-season access to areas previously accessible only during winter, impacts to biological resources including fish and wildlife species would be adverse and likely to be significant from the addition of an access road in TFTA.

3.8.8.3.2 No Action

The current amount of localized ground disturbance (from training, vehicles and live fire) would be expected to continue and wildlife using the area would be expected to remain active in occupied habitats.

3.8.8.4 Considerations for Future Planning

In addition to siting criteria and vegetation clearing guidelines listed in Section [3.7.8.3](#), other measures, BMPs, and SOPs that should be applied to ground-disturbing activities are included in Appendix G, *Biological Resources*.

3.8.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.8.9.1 Affected Environment

TFTA is the ROI for the TFTA Access Road Programmatic Action. The affected environment for TFTA is the same as described in Section [3.2.9.1](#), Realistic Live Ordnance Delivery.

3.8.9.2 Impact Assessment Methodology

The methodology used for the analysis of potential impacts on cultural resources for the proposed TFTA Access Roads action is the same as the methodology applied to analysis of the EGMS action (Section [3.7.9.2](#)).

3.8.9.3 Environmental Consequences

3.8.9.3.1 Proposed Action

This Action would construct an access road within TFTA to provide year-round training access to the Blair Lakes Impact Area.

There is the potential for impacts on cultural resources from the construction of the TFTA access road and training associated with this action. Prior to implementation of any element of this proposed action, the Army would comply with NHPA Section 106, including identification of historic properties, and assessment and resolution of adverse effects through consultation with Alaska SHPO and potentially affected Federally recognized tribes.

There is the potential for impacts on traditional cultural resources or Alaska Native activities from the proposed construction of an access road in TFTA. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has initiated

government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed construction of an access road in TFTA (see Section [1.6.5](#)). Consultation will continue as the proposal progresses toward a definitive action.

3.8.9.3.2 No Action

Under the No Action Alternative there would be no establishment of an access road in TFTA. Existing use of the ranges and airspace would continue under this alternative and resources would continue to be managed in compliance with Federal law and Army regulations.

3.8.9.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.8.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.8.10.1 Affected Environment

LAND STATUS, MANAGEMENT AND USE

This proposal only involves military land on TFTA. [Figure 3-39](#) provides detailed information on the layout of military infrastructure and uses in TFTA proposal area and adjacent non-military land.

Surrounding land directly north and east of the proposal area is primarily State-owned. The area is largely forested with non-contiguous areas of the Tanana Valley State Forest. The land between TFTA and the river is within the proposed alignment for a new railroad between Fairbanks and Delta Junction. Completion of that project would bring new opportunities for year-round public and military access across the river. The potential environmental effects of the railroad project are currently under evaluation. The north end of TFTA is contiguous with Fort Wainwright, but physically separated by the Tanana River.

PUBLIC ACCESS

Land Access

Access and use to military lands under consideration for access roads to Blair Lakes Impact Area are described above in Section [3.2.10.1](#). In addition, public access to TFTA is described in Section [3.2.10.1](#) ([Land Status, Management, and Use](#) and the [Public Access](#) subsections). No RS 2477 designated trails are located within the area of influence. Several other non-improved trails in TFTA intersect with the proposed alignments (shown in [Figure 3-39](#)).

Aerial Access

Public aerial access to TFTA is described in Section [3.2.10.1](#) (the [Public Access](#) subsection).

Navigable and Public Waters

Portions of the Tanana River and the Wood River bordering TFTA are categorized as navigable rivers. Management of sport fishing falls within the Lower Tanana River Basin area.

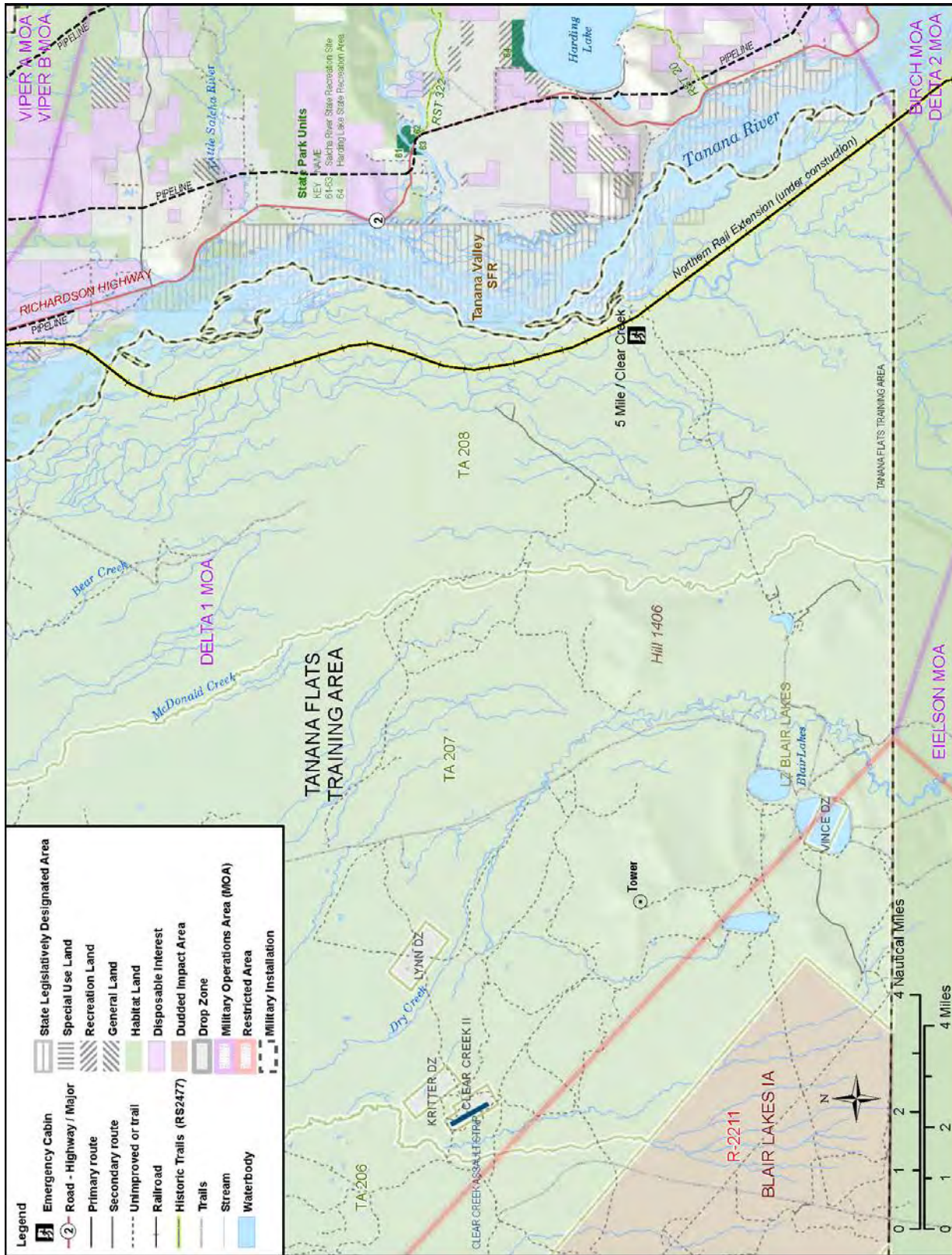


Figure 3-39. Military Uses, Special Use Areas, General Land Classifications and Productive Uses - Tanana Flats Training Area Roadway Access Proposal Area

Source: ADNR 2009-2, ADNR 2009-3, ADNR 2011-3, ADNR 2011-7, ADNR 2011-13

RECREATION

Recreation on Military Land

Recreational use on TFTA is described in Section [3.2.10.1](#) ([Land Status, Management, and Use](#) and [Recreation](#) subsections).

Recreation on Non-military Land

There are no Federally designated recreation lands within the ROI of the proposed action. One State-designated area, Tanana Valley State Forest, supports recreation and occurs within the ROI for this proposed action. The area supports the usual general recreational uses permitted by ADNR. Hunting, trapping, and fishing activities follow regulations pertaining to GMU 20A (see Appendix I, *Land Use, Public Access, and Recreation*).

3.8.10.2 Impact Assessment Methodology

General methodology pertaining to evaluating land use, public access and recreation are described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The method for evaluating impacts and selecting future siting criteria is the same as that described in Section [3.7.10.2](#).

3.8.10.3 Environmental Consequences

3.8.10.3.1 Proposed Action

Impacts from siting new access roads into the Blair Lakes Impact Area are similar to those described in Section [3.7.10.3.1](#). Particular issues relative to this proposal include vetting optional alignments and potential interface between new access road termini with the new Northern Rail Extension alignment and proposed methods for crossing the Tanana River. Some portion of a TFTA access road would extend beyond military land, requiring detailed coordination with landowners and regulators, particularly ADNR and ADFG, the Alaska Railroad Corporation, Alaska Department of Transportation, USACE, USFWS, FNSB, and potentially affected nearby communities such as Salcha and North Pole.

Within TFTA, a proposed access road could benefit public land use, safety, and recreation. A new road would reduce travel time to remote areas used for both military and non-military purposes (particularly hunting and fishing). A new road into this area would provide access for emergency services and field crews, and could directly link to the Blair Lakes trail survival shelter. Under Alternative A, a new TFTA access road may pass near the 5-mile Clear Creek Emergency shelter, enhancing this site with more robust emergency access. However, these benefits may also come with new issues of safety and controlling of trespass users.

While this proposal has some potential to benefit access and recreation, without careful pre-planning and siting, it has potential to conflict with public recreational uses. The recommended pre-planning process and siting criteria described in Section [3.7.10.3.1](#) would also apply to this proposal.

3.8.10.3.2 No Action

Under the No Action Alternative, construction and use of a new road to the Blair Lakes area would not occur. No effect to current land use, access or recreational use would result. Potential benefits from improved access and safety would be foregone.

3.8.10.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.8.10.3.1](#).

3.8.11 Infrastructure and Transportation

Transportation routes, electricity, water, sewage, and natural gas utilities are necessary to support various missions, as well as to maintain the residences of military personnel. Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for additional information regarding transportation and utility resources throughout this region.

3.8.11.1 Affected Environment

INFRASTRUCTURE

Electrical Transmission

A total of 27.86 miles of electric power transmission lines cross the Tanana Flats portion of the maneuver space. In addition, 1.02 miles of telephone transmission lines cross the YTA portion of the maneuver space.

In 2007, a 50-year contract was awarded to Doyon Utilities for assumption of ownership, operation, and maintenance of the electric power generation and distribution systems, central heat and heat distribution systems, natural gas distribution systems, potable water distribution systems, and wastewater collection systems of USAG-AK facilities, including JBER, Fort Wainwright, and Fort Greely. Aurora Energy serves as a subcontractor for the operation of electrical and heat utilities and power generation assets. In addition to the three installations listed above, the contract includes three remote sites: Black Rapids, Bolio Lakes, and YTA.

Currently no commercial power is available in TFTA. GVEA's Northern Intertie is routed along the northwestern and northern sections of TFTA (GVEA 2011).

Water Supply and Wastewater Treatment

Doyon Utilities has assumed ownership, operation, and maintenance of the potable water distribution systems and wastewater collection systems of USAG-AK facilities, including JBER, Fort Wainwright, and Fort Greely. In addition to these three installations, the contract includes three remote sites: Black Rapids, Bolio Lakes, and YTA. Regulations covering water appropriation are contained in the AAC at 11 AAC 93.010-970. Neither the Alaska Constitution nor the Water Use Act differentiate between surface and groundwater uses.

Natural Gas and Oil Pipelines

No natural gas or oil pipelines are present within this area.

TRANSPORTATION

Roads, Bridges and Trails

No bridges or roads lie within the maneuver access area. Approximately 212 miles of trails are present within TFTA. Most of these trails are unimproved, as shown in [Table 3-86](#).

Table 3-86. Trails in Tanana Flats Training Area

Trail type	Length (miles)
Secondary	13.4
Tertiary	22.9
Unimproved	175.7
Total	212.1

Source: USARAK GIS, 2010

Rail

Railroad infrastructure includes the Alaska Railroad Northern Rail Extension Project which is currently scheduled for completion in August 2014.

3.8.11.2 Impact Assessment Methodology

The general methodology for evaluating infrastructure and transportation is described in Section [3.2.11.2](#).

3.8.11.3 Environmental Consequences

3.8.11.3.1 Proposed Action

TRANSPORTATION

Within the current study area, there are 56 miles of trail with no existing bridges or roads. Current plans for this programmatic action are to construct a road within TFTA to provide year-round training access to the Blair Lakes Impact Area. The desired road surface would be a 35-foot-wide aggregate surface to allow two Stryker vehicles to pass. Because of the current absence of permanent roads, the addition of transportation reroutes would result in a net positive impact to current transportation networks. Specific alternatives for direct access to Blair Lakes and TFTA are not developed to the point where specific decisions or plans can be made.

The Richardson Highway runs along this project area and is approximately 368 miles in total length, providing a north-south connection between Fairbanks and Valdez. The Richardson Highway junctions with five other highways. Year 2030 traffic volumes are forecast along most segments of the Richardson Highway between 1,500 and 4,500 AADT. Based on these forecast traffic volumes, a qualitative planning level assessment of the Richardson Highway by ADOT&PF revealed no major roadway capacity constraints over the near- and long-term (ADOT&PF 2010-1).

INFRASTRUCTURE

Within the project area, there are 29 miles of electrical transmission lines. Within the ground training areas, electrical distribution lines run along the northwestern and northern sections of TFTA. No commercial power is available in TFTA. Specific alternatives for electrical requirements for TFTA are not developed to the point where specific decisions or plans can be made. No negative impact is anticipated from the proposed action and alternatives. There is a potential for beneficial impacts by creating new transportation corridors to activity areas where ROW will exist to place new transmission lines.

Fort Wainwright has a coal-fired plant that generates steam and electricity to meet the heating and electricity demands of the base. The plant currently has 20 MWe installed capacity, but only 18 MWe effective capacity. There is currently a plan to double power generation capacity at Fort Wainwright and wheel power to the other two military bases. Current plans also involve a major upgrade to the electrical and boiler control systems at the existing plant (Doyon 2011-2).

Water wells are the source for all potable and non-potable water at Fort Wainwright. Fort Wainwright has 19 raw water supply wells, with two primary source wells for the water plant and two backup supply wells to the water plant. Five wells are classified as fire protection wells and provide water for fire protection use during a fire demand condition. The Fort Wainwright Wastewater Collection System includes lift stations, manholes, force mains, and gravity piping (Doyon 2011-2).

There are no natural gas or oil pipelines present. No impacts on these resources are anticipated from the proposed action.

3.8.11.3.2 No Action

No impacts on infrastructure and transportation would occur under the No Action Alternative.

3.8.11.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.8.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.8.12.1 Affected Environment

The proposed access roads would be located entirely within TFTA. TFTA is within the FNSB and is defined as the ROI. There are no residents or housing within TFTA, and, therefore, population and housing are not discussed in this section. Economic activity in TFTA that could be affected by the proposed action includes construction of the access roads and recreation.

ECONOMIC ACTIVITY

In 2009, total full-time and part-time employment in the FNSB totaled 58,761. Total employment in the construction industry totaled 3,622, representing approximately 6 percent of total employment in the borough (BEA 2011-2).

RECREATION

Training areas, in particular TFTA, are prime habitat for wildlife, including moose, a popular species for hunting, food and wildlife viewing (ASCG Inc. 2006). The road assignments are in sub-units of the Tanana Flats that are open to hunting, fishing, and trapping during seasons established by the ADFG and that are used extensively by hunters, trappers, airboaters, and other recreationists. Areas on the Tanana Flats that are permanently “closed” include the Blair Lakes Impact Area and the Alpha Impact Area. For more-detailed information on recreation in the ROI, see Section [3.8.10.1](#) and Section [3.2.10.1](#).

3.8.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.8.12.3 Environmental Consequences

3.8.12.3.1 Proposed Action

The TFTA Roadway Access action involves construction of access roads and changes in ground maneuver activities within the TFTA. In general, construction activities are anticipated to result in temporary and beneficial socioeconomic impacts that would occur only during the construction phase. Based on the economic activity in the region, it is anticipated that the Fairbanks North Star Borough would be able to provide the majority of local labor and supplies. The direct and indirect socioeconomic impacts associated with this action are dependent on the construction expenditures, which are unavailable at this time, but should be taken into consideration during the siting criteria. If any portion of a TFTA access road would extend beyond military land, this would require detailed coordination with landowners and regulators, particularly ADNR and ADFG, the Alaska Railroad Corporation, Alaska Department of Transportation, USACE, USFWS, Fairbanks North Star Borough, and potentially affected nearby communities such as Salcha and North Pole. A concern expressed during the public scoping comment period indicates that there would be potential for significant impacts to civilians who currently live and utilize the affected nearby communities.

Within TFTA, a proposed access road could benefit public land use/access, safety, and recreation (described in Section [3.8.10.3.1](#)), and in turn could have beneficial economic impacts. The specific alternatives for direct access to Blair Lakes and TFTA are not developed to the point where quantitative economic analysis can be performed. However, based on a review of environmental consequences for other resources, potential for high or significant adverse impacts associated with the action would be mitigated based on SOPs, BMPs, and continuation of mitigation measures used previously for the Alaska MOAs.

3.8.12.3.2 No Action

Under the No Action Alternative, the creation and operation of a year-round maneuver space in TFTA would not be implemented. There would be no impacts on socioeconomic resources under the No Action Alternative.

3.8.12.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.8.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.8.13.1 Affected Environment

The proposed road alignments in TFTA would be entirely within the TFTA boundaries. TFTA is within a State nonsubsistence area and a Federal nonrural area, as depicted in [Figure 3-23](#) (ADFG 2011-10; USFWS 2010-1). USAG-FWA does allow access to these ranges for recreational use (described in Section [3.7.10](#)); however, resources are not managed or prioritized for subsistence.

3.8.13.2 Impact Assessment Methodology

The general methodology for evaluating subsistence is described in Section [3.1.13.2](#).

3.8.13.3 Environmental Consequences

3.8.13.3.1 Proposed Action

As the areas on TFTA accessible to the public are not managed for subsistence resources, and Alaska residents are not given priority for subsistence resources in TFTA, the development of new access infrastructure within TFTA would not be expected to affect subsistence resources. However, this action may affect recreational activities and public accessibility, which is described in Section [3.7.10](#).

3.8.13.3.2 No Action

Under the No Action Alternative, subsistence activities would continue as they are currently practiced.

3.8.13.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.8.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.8.14.1 Affected Environment

The affected environment for the TFTA Access Road proposal includes the FNSB. [Table 3-87](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children. Note that the table characterizes existing population groups in the affected environment at a general level of detail and does not indicate whether the proposal would create an environmental justice effect.

Table 3-87. Minority Population, Low-Income Population and Children by Area

Area	Total Population	Percent Low-Income	Percent Minority	Percent Alaska Native	Percent Children
Fairbanks North Star Borough	97,581	8.0	25.9	7.0	25.6
State of Alaska	710,231	9.6	35.9	14.8	26.4

Note: Except for the low-income data, which are based on the 2005-2009 American Community Survey conducted by the Census, numbers represent 2010 decennial Census data.

Source: USCB 2010-1, 2010-2.

The percent minority in FNSB is 25.9 percent, which is lower than the 35.9 percent average for the State of Alaska. The percent low-income is 8.0 percent, which is lower than the 9.6 percent average for the State of Alaska. The percent Alaska Native is 7.0 percent, which is less than the 14.8 percent average for the State of Alaska. The percent of children is 25.6 percent, similar to the 26.4 percent average for the State.

3.8.14.2 Impact Assessment Methodology

General Methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#).

3.8.14.3 Environmental Consequences

3.8.14.3.1 Proposed Action

TFTA involves construction of access roads and changes in ground maneuver activities within TFTA. TFTA is located in a State nonsubsistence area and a Federal nonrural area not managed for subsistence. Based on a review of environmental consequences for other resources, potential for significant adverse impacts could be mitigated based on SOPs, BMPs, and possible use of mitigation measures similar to those used previously for the Alaska MOAs.

If any portion of a TFTA access road would extend beyond military land, this would require detailed coordination with landowners and regulators, particularly ADNR and ADFG, the Alaska Railroad Corporation, Alaska Department of Transportation, USACE, USFWS, FNSB, and potentially affected nearby communities such as Salcha and North Pole. Within TFTA, a proposed access road could benefit public land use/access, safety, and recreation.

Because the areas on TFTA accessible to the public are not managed for subsistence resources, and Alaska residents are not given priority for subsistence resources in TFTA, the development of new access infrastructure within TFTA would not be expected to affect subsistence resources.

TFTA would not be expected to create disproportionately high and adverse environmental or health effects on minority or low-income populations or children but the measure listed below would be helpful in minimizing effects to inhabitants of non-military lands.

If further analysis related to siting and construction of TFTA identifies unavoidable significant adverse impacts on inhabited non-military areas, these areas would be evaluated to determine whether they have a higher percentage of minority and low-income populations relative to the comparison area and whether facilities serving children would be adversely affected. If so, the need for environmental justice mitigation measures would be evaluated.

3.8.14.3.2 No Action

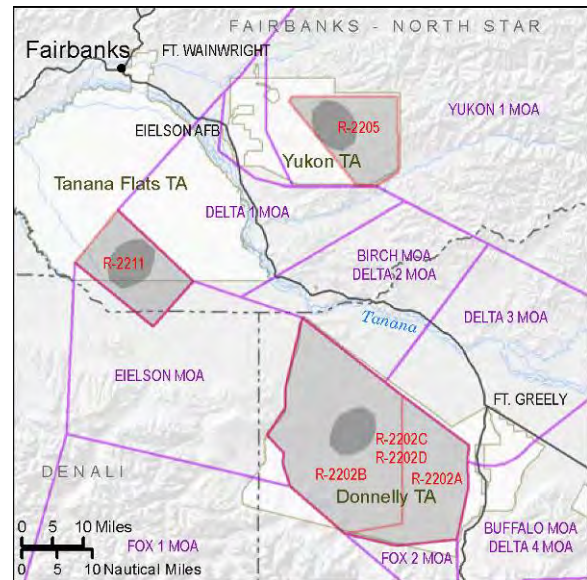
No additional access roads and no changes in ground maneuver activities would occur and thus no disproportionately high and adverse environmental or health effects on minority or low-income populations or children would occur.

3.8.14.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.9 JOINT AIR-GROUND INTEGRATION COMPLEX (JAGIC) (PROGRAMMATIC)

The digitally integrated JAGIC is the capstone capability for joint and combined live training. The JAGIC is a proposed JPARC capability for joint and combined live-fire training which would allow Army combined arms capabilities to jointly operate with the Air Force, Navy, and Marine Corps air-to-air and air-to-ground capabilities, along with Special Operations Forces. Ground-disturbing components of the project would include construction of realistic targets, scoring mechanisms, range support buildings, parking area, range tower, convoy live-fire route, urban centers, and an area for Service rocket training, power, communications, and service roads. From a military requirements perspective, it is estimated that the footprint of the overall complex should be at least 26,687 acres (42 square miles (mi²) or 108 km²) for the three facilities, which would be located within existing training areas.



The JAGIC proposal considers three potential sites (see the gray-shaded areas in the map above) with a composite study footprint of almost 90,000 acres (139 square miles). The preliminary layout for this capability would be constructed and used on existing military land. The potential for both ground-based military operations and use of associated airspace for hazardous operations, potentially affects a wide spectrum of resources. Potential for significant impacts is estimated as low for infrastructure and transportation, and socioeconomics. In response to future mission change and force structure modernization, it is likely that the Army and other services currently training in Alaska will be required to adapt their training and testing on JPARC lands and ranges. The Army will evaluate any additional modernization and enhancement of JPARC capabilities based on future service requirements in accordance with NEPA.

3.9.1 Airspace Management and Use (No Analysis Needed)

The proposed JAGIC activities do not involve any changes to the management, use, or structure of the surrounding MOA and restricted airspace environment.

3.9.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.9.2.1 Affected Environment

The affected areas are located in the Stuart, Blair Lakes, and Oklahoma Impact Areas. These areas experience noise generated by firing and detonation of weapons. The baseline noise environment in the Oklahoma and Blair Lakes Impact Areas are described in the Section [3.2.2.1](#) (RLOD); the existing noise environment in the Stuart Impact Area, in Section [3.4.2.1](#) (DMPTR Restricted Area Expansion).

3.9.2.2 Impact Assessment Methodology

The programmatic assessment of the proposed JAGIC was conducted using munitions noise impact assessment methods described in Sections [3.2.2.2](#) and [3.3.2.2](#).

3.9.2.3 Environmental Consequences

3.9.2.3.1 Proposed Action

3.9.2.3.1.1 DTA Study Area

Under the DTA Study Area, the JAGIC would be located in the central area of DTA-West, near the western boundary of the Oklahoma Impact Area. Operations at the JAGIC would include ground vehicle (Stryker) maneuvering, small arms training, indirect munitions fire, Army aviation munitions training, and Air Force aerial ordnance training. High-explosive munitions are currently used in the Oklahoma Impact Area, and noise levels associated with proposed munitions training would be qualitatively similar to that generated by current munitions. Noise levels generated by training at the JAGIC would depend on the intensity of the training operations. The proposed location of the JAGIC, 8 miles from the nearest DTA boundary, would be expected to minimize noise experienced off-range.

3.9.2.3.1.2 YTA Study Area

Under the YTA Study Area, the JAGIC would be located near the center of YTA, and would accommodate the same training activities described for the DTA Study Area. Noise impacts under the YTA Study Area would be similar to those described for the DTA Study Area. YTA is not as large as DTA, and it is more likely that noise levels exceeding 62 dB CDNL or 115 dB PK 15(met) would extend beyond range boundaries. The extent of noise impacts would depend on the intensity of training at the JAGIC.

3.9.2.3.1.3 TFTA Study Area

Under the TFTA Study Area, the JAGIC would be constructed near the southern boundary of TFTA. The Blair Lakes Impact Area, which would receive munitions fired in the JAGIC, is currently limited to non-dud-producing munitions types. If the proposed JAGIC were to be constructed in the Blair Lakes Impact Area, it would be expected that no high-explosive rounds would be permitted. Inert munitions generate relatively low noise levels on impact. Noise impacts under this alternative would be generated primarily by firing of munitions and the maneuvering of air and ground vehicles. Noise associated with the firing of non-high-explosive munitions under this alternative would be qualitatively similar to noise associated with weapons use under baseline conditions. The specific extent of noise impacts under this alternative would depend on the intensity of operations in the JAGIC.

3.9.2.3.2 No Action

Under the No Action Alternative, the JAGIC would not be constructed. Training operations would continue to occur as they do under baseline conditions.

3.9.2.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.9.3 Safety

FLIGHT SAFETY

This proposal does not include any airspace actions or flight activities beyond those that currently exist within the surrounding airspace environment; therefore, there would not be any additional flight safety concerns associated with the proposed actions.

3.9.3.1 Affected Environment

FLIGHT SAFETY

The activities identified for this proposal do not include any changes to the use or structure of the existing airspace surrounding the JAGIC locations. Refer to Sections [3.1](#) through [3.6](#) for discussions of the flight safety risks and prevention programs/practices associated with this airspace environment.

GROUND SAFETY

The ROI for ground safety is TFTA, DTA, and YTA. For this alternative, the environment affected by activities involved in range safety and control, UXO and munitions safety, public access control, and fire and emergency response would not differ from that previously described for RLOD Alternative A in Section [3.2.3.1](#).

3.9.3.2 Impact Assessment Methodology

FLIGHT SAFETY

The assessment methodology for flight safety impacts addressed in Section [3.1.3.2](#) was used, as appropriate, for the airspace activities conducted in the areas overlying the JAGIC proposed areas is as discussed in Section [3.1.3](#).

GROUND SAFETY

Impact assessment methodology is the same as in Section [3.2.3.2](#).

3.9.3.3 Environmental Consequences

3.9.3.3.1 Proposed Action

GROUND SAFETY

Range Safety and Control – There are no environmental impacts associated with range safety and control for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Unexploded Ordnance and Munitions Safety – There are no environmental impacts associated with UXO and munitions safety for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Public Access Control – There are no environmental impacts associated with public access control for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Fire and Emergency Response – There are no environmental impacts associated with fire and emergency response for this alternative not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

3.9.3.3.2 No Action

Under the No Action Alternative, no joint air-to-ground training would occur and thus, no impacts on public health and safety would occur.

3.9.3.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.9.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.9.4.1 Affected Environment

The proposed JAGIC would be located in Southeast Fairbanks Census Area, Alaska, which is in attainment of all NAAQS. Table B-12 in Appendix B, Section B.4.3, provides a summary of the estimated 2008 annual emissions for this area.

3.9.4.2 Impact Assessment Methodology

Currently, this action is in its developmental stages and sufficient data is not available to analyze air quality impacts. Once sufficient data is available, the air quality analysis will estimate the construction emissions and the changes (increases and/or decreases) in emissions that would occur from the proposed modification of the selected restricted areas to create the JAGIC for the alternative that would be expected to result in the highest emissions. The estimation of proposed operational emissions will be based on the increase in operational activities at the affected restricted area and the construction associated with the JAGIC.

The analysis will follow the methodology described in Appendix B, Section B.4.5. Since the project region for the proposed action is in attainment of all NAAQS, the PSD new major source threshold of 250 tons per year of each pollutant can be used as an indicator of significance or nonsignificance of projected air quality impacts.

PSD CLASS I AREA IMPACT ANALYSIS

The PSD Class I area of concern is Denali National Park, which is approximately 45 miles from the proposed JAGIC operation area. Therefore, due to the proximity of the proposed action to a pristine PSD Class I area, the potential for proposed activities to affect visibility within this area will need to be analyzed.

3.9.4.3 Environmental Consequences

3.9.4.3.1 Proposed Action

Air quality impacts from construction and operational activities of the proposed JAGIC would occur from (1) combustive emissions due to the use of fossil-fuel-powered equipment and aircraft, (2) combustive emissions due to munitions expenditures, and (3) fugitive dust emissions (PM₁₀ and PM_{2.5}) due to the operation of equipment on exposed soil. Increases in emissions due to changes in operations associated with the JAGIC action would occur primarily from combustive emissions due to the use of fossil-fuel-powered equipment and aircraft.

Information needed to calculate air emissions resulting from the proposed construction activities associated with the JAGIC action includes the following:

- The type, horsepower, and daily and annual usage rates of fossil-fuel-powered equipment used to construct the roads associated with the proposed action

- The usage of water trucks during construction for dust control
- The surface type, length, and width of the proposed roads
- The area and heights of proposed buildings
- The distance that the trucks would travel to the materials and dumping sites

Operational information needed to calculate the air emissions resulting from increased activities associated with the JAGIC action includes the following:

- The type, horsepower, and daily and annual usage rates of fossil-fuel-powered equipment associated with increased training activities for the proposed action
- Information regarding any increase in munitions expenditures that are associated with the proposed action, including the types of munitions and the baseline and expected utilization of each munitions type
- Sortie information, including the types of aircraft and their engines, durations in the affected area, and altitude distributions

The emissions factors needed to derive construction source emission rates are found in *Compilation of Air Pollution Emission Factors* (EPA 1995) and emissions inventory data produced by the mathematical models: OFFROAD2007 for off-road construction equipment (ARB 2006-1) and EMFAC2007 for on-road vehicles (ARB 2006-2); *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEE 2009).

Emission reduction strategies that can be incorporated during construction of the JAGIC include the following:

- Use water trucks to keep areas of vehicle movement damp enough to minimize the generation of fugitive dust.
- Minimize the amount of disturbed ground area at a given time.
- Minimize ground-disturbing activities in proximity to the construction area boundary.
- Discontinue proposed ground-disturbing activities within 3 miles upwind of the construction area boundary when winds exceed 25 miles per hour or when visible dust plumes emanate from the site and then stabilize all disturbed areas with water application.
- Designate personnel to monitor the dust control program and to increase dust suppression measures (e.g., watering), as necessary, to minimize the generation of dust.

3.9.4.3.2 No Action

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations at YTA, TFTA, and DTA. Therefore, the No Action Alternative would not result in any new air quality impacts.

3.9.4.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.9.5 Physical Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5.

3.9.5.1 Affected Environment

TOPOGRAPHY

The general topographic characteristics of TFTA, YTA, and DTA are described in Section [3.8.5.1](#). Topography on the Blair Lakes Impact Range in TFTA is fairly level, with elevations gradually increasing from the northwest to southeast. Low elevations are just under 600 feet in the northwest corner and rise to 1,365 feet at an unnamed peak to the west of the Blair Lakes. Elevations at YTA in the vicinity of the Project Area are variable and rugged, with numerous peaks of over 3,000 feet and valleys under 1,000 feet, often with sharp relief. Elevations in the Oklahoma Impact Area and the proposed action area in DTA range from approximately 1,600 to 2,000 feet and gradually increase from the northeast to the southwest. Dinosaur Ridge, a 3,674-foot peak, lies just to the west of the Project Area.

GEOLOGIC HAZARDS

Geologic hazard conditions for TFTA, YTA, and DTA are described in Section [3.8.5.1](#).

SOILS

General characteristics of soils in TFTA, YTA, and DTA are described in Section [3.8.5.1](#).

Detailed mapping of soil in the Project Area in TFTA is not currently available, but in general, soils in TFTA are extremely acidic to neutral, have moderate to high potential for frost action, and present limitations to development due to depth to permafrost, depth to the high water table, and high organic matter content (USDA 2006).

Soils in the Project Area of YTA are extremely acidic to neutral, have moderate to high potential for frost action, and present limitations to development due to depth to permafrost, depth to the high water table, high organic matter content, and potential for subsidence (USDA 2006).

Generally, soils in DTA in the Project Area are extremely to moderately acidic, have moderate to high potential for frost action, and present limitations to development due to depth to permafrost, depth to the high water table (especially during the “wet” season), high organic matter content, and a potential for subsidence (USDA 2005).

Representative soils found in the Project Areas are summarized in [Table 3-88](#).

PERMAFROST

General permafrost conditions on TFTA, YTA, and DTA are described in Section [3.8.5.1](#).

3.9.5.2 Impact Assessment Methodology

The general methodology for evaluating physical resources is described in Section [3.2.5.2](#).

Table 3-88. Characteristics of Representative Soils Found in the Area of Proposed Joint Air–Ground Integration Complex Locations

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
Tanana Flats Training Area – Blair Lakes Impact Area (see Table 3-83 for general soil types)											
Donnelly Training Area – Oklahoma Impact Area¹											
622	Histels, impact area	Outwash plains	12 to 28	Water: slight Wind: slight	Low	Poorly drained	None/none	0 to 8	Yes	10.7	-
623	Histels-Orthels-Turbels association	Outwash plains	8 to 28	Water: slight Wind: severe	High	Poorly drained	None/none	0 to 8	Yes	3.0 to 10.7	-
627	Histels-Typic Histoturbels-Typic Historthels complex	Terraces	6 to 24	Water: slight Wind: slight	High	Poorly drained	Rare/frequent	0 to 8	Yes	2.4 to 5.0	-
652	Terric Fibristels-Ruptic-Histic Aquiturbels-Typic Aquiturbels complex	Terraces and outwash plains	6 to 24	Water: moderate Wind: slight	High to very high	Poorly drained	Rare/frequent	0 to 8	Yes	2.1 to 5.0	-
680	Typic Cryofluvents-Typic Dystrocryepts-Typic Histoturbels complex	Floodplains	-	Water: slight Wind: severe	Low	Well drained	Occasional/none	>60	No	2.1 to 11.7	-
681	Typic Dystrocryepts-Ruptic-Histic Aquiturbels complex	Hills, ridges	12 to 24	Water: severe Wind: severe	High	Well drained	None/none	4 to 6	Yes	6.7 to 7.1	-
Yukon Training Area											
20	Mosquito peat	Depressions on alluvial flats	14 to 31	Water: slight Wind: slight	High	Very poorly drained	Rare/frequent	0	Yes	4.1	Black spruce and tamarack woodland

Table 3-88. Characteristics of Representative Soils Found in the Area of Proposed Joint Air–Ground Integration Complex Locations
(Continued)

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
41C	Minto silt loam, 7 to 12 percent slopes	Hills	-	Water: severe Wind: severe	Medium	Moderately well drained	None/none	4 to >72 in	No	12.6	Paper birch and white spruce forest
41D	Minto silt loam, 12 to 20 percent slopes	Hills	-	Water: severe Wind: severe	Medium	Moderately well drained	None/none	4 to >72	No	12.6	Paper birch and white spruce forest
50X	Ester peat, 20 to 45 percent slopes	Hills	7 to 30	Water: severe Wind: slight	Very high	Very poorly drained	None/none	4	Yes	2.1	Black spruce woodland
81V	Saulich and Chatanika soils, 3 to 15 percent slopes	Hills, valley sides	12 to 39	Water: severe Wind: severe	Very high	Poorly to very poorly drained	None/frequent	0 to 8	Yes	3.6 to 4.3	Black spruce forest
81X	Saulich and Chatanika soils, 15 to 20 percent slopes	Hills, valley sides	12 to 39	Water: severe Wind: severe	Very high	Poorly to very poorly drained	None/frequent	0 to 8	Yes	3.6 to 4.3	Black spruce forest
82V	Gilmore and Steese silt loams, 3 to 15 percent	Hills	-	Water: severe Wind: severe	Medium to high	Well drained	None/none	>72	no	2.9 to 6.1	Paper birch white spruce, and quaking aspen forest
82X	Gilmore and Steese silt loams, 15 to 45 percent	Hills	-	water: severe wind: severe	High	Well drained	None/none	>72	No	2.9 to 6.1	Paper birch white spruce, and quaking aspen forest
86V	Brigadier and Manchu silt loams, 3 to 15 percent slopes	Hills	-	Water: severe Wind: severe	High to very high	Moderately well to well drained	None/none	7 to >72	No	3.2 to 6.7	Black spruce forest

Table 3-88. Characteristics of Representative Soils Found in the Area of Proposed Joint Air–Ground Integration Complex Locations
(Continued)

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
86X	Brigadier and Manchu silt loams, 3 to 45 percent slopes	Hills	-	Water: severe Wind: severe	High to very high	Moderately well to well drained	None/none	7 to >72	No	3.2 to 6.7	Black spruce, white spruce, balsam poplar and paper birch forest
90	Fubar-Tanana complex, 0 to 2 percent slopes	Floodplains, terraces	16 to 47	Water: slight Wind: severe	Low to high	Poorly to moderately well drained	Rare/frequent	0 to 12	Yes	3.4 to 5.2	Black spruce forest
212	Goldstream-Histels complex, 0 to 3 percent slopes	Floodplains, valleys	14 to 24	Water: slight Wind: slight	Negligible	Very poorly drained	None/frequent	0 to 8	yes	3.6	Black spruce woodland
411C	Minto-Chatanika complex, 7 to 12 percent slopes	Hills	12 to 39	Water: severe Wind: severe	Medium to very high	Poorly to moderately well drained	None/frequent	0 to 8	yes	4.3 to 12.6	Black spruce, white spruce, and paper birch forest
411D	Minto-Chatanika complex, 12 to 20 percent slopes	Hills	12 to 39	Water: severe Wind: severe	Medium to very high	Poorly to moderately well drained	None/frequent	0 to 8	Yes	4.3 to 12.6	Black spruce, white spruce, and paper birch forest
451X	Brigadier-Ester complex, 15 to 45 percent slopes	Hills	7 to 30	Water: severe Wind: severe	High to very high	Very poorly drained	None/none	4	No	2.1 to 3.2	Black spruce forest and woodland

¹ Access to Oklahoma Impact Area was restricted during the 2005 Soil Survey; soil data for that area were extrapolated by the NRCS using similar areas and landforms.

Source: USDA 2005, 2006, 2011.

3.9.5.3 Environmental Consequences

This section analyzes the potential impacts on physical resources (including soils, permafrost, and seismicity) associated with the proposed development and use of the JAGIC. Baseline conditions are addressed in Section [3.9.5.1](#).

3.9.5.3.1 Proposed Action

DTA STUDY AREA

The proposed action would result in the construction of target arrays with service roads, range support buildings, a parking area, a range tower, a convoy live-fire route, urban centers, and an area for service rocket training, designed for at least battalion-sized training events interacting with JIIM components located on DTA-West. Most of the target arrays, the convoy live-fire route, and the urban facilities would be concentrated in areas within existing impact areas (Oklahoma), and the remaining area within the proposed JAGIC would serve as a maneuver area.

Since soil conditions vary greatly within DTA-West, potential impacts associated with the construction of roads or infrastructure would be dependent upon localized soil characteristics at the point of construction. Currently, detailed soil surveys for the proposed locations of the JAGIC area are not available; however, soil types and conditions representative of each training area are discussed in Section [3.9.5.1](#).

The primary impact associated with service road construction would be an increased potential for erosion during preliminary grading activities and while soil is exposed before application of roadbed and roadway surface material. Primary impacts associated with the construction of parking lots, range support buildings, and other structures would include an increase of impervious surface and surface runoff, soil erosion, reduced soil strength, the removal of vegetation and soil in the building/construction footprint, and soil compaction in the area of and surrounding construction. Impacts from all construction activities would be short-term.

Potential for significant adverse impacts on permafrost during construction of access road(s) would result from removal of upper soil layers or vegetative mat, leading to increased possibility of permafrost degradation and creation of thermokarst features. Structures built on areas with permafrost are subject to differential settling and other damaging effects if there is not sufficient insulation between the structure and the underlying permafrost.

As with soils, extent and location of permafrost beneath the surface at DTA-West is variable and thus the extent of impacts on permafrost would be dependent upon permafrost extent at site of road (or infrastructure component) construction. Permafrost, however, is present at DTA-West to some extent. General permafrost conditions and trends are described in Section [3.9.5.1](#).

Primary impacts would occur from increased training and ground maneuver activities related to the live-fire, battalion-sized training events and the potential off-road use of Stryker vehicles. Since soil conditions vary greatly within DTA-West, potential impacts associated with the ground maneuver activities and use of Stryker vehicles would be dependent upon localized soil characteristics; however soils would be impacted to varying extent by proposed maneuver activities. Potential impacts resulting from training activities associated with the JAGIC, especially from the use of Stryker vehicles, would be similar to those described in Section [3.8.5.3.1](#). No beneficial or adverse impacts are anticipated in areas where soil strength is high (on well-drained, gravelly or sandy soils); potentially adverse, but not significant impacts are expected on soils with moderate soil strength (wet or poorly drained sand or silty soils); and significant impacts would be associated with soils having low soil strength (saturated or waterlogged sands, silts, and organic soils). Impacts on soil from proposed activities can include soil

compaction, erosion, reduction of soil strength/support capacity, restricted water movement, creation of ruts, contamination, and transport of sediment.

The potential for significant impacts on permafrost exists from ground maneuver training and off-road Stryker use, as permafrost is particularly vulnerable to the effects of ground disturbance. With the removal of overlying insulating vegetative mat, permafrost can begin to melt, resulting in thermokarst, land subsidence, and the formation of standing water/ponds, leading to areas largely impassible to vehicle traffic and limited usefulness for other training activities. Large portions of DTA-West are considered “No Go” areas to Stryker maneuvering during summer months, due largely to soil conditions (USARAK 2004-1).

DTA-West is located within an area classified by the USGS as moderate to high for earthquake hazard potential. Effects from the 7.9 earthquake in November 2002 were felt on DTA-West and structures and infrastructure (including roads) on nearby TFTA incurred some damage as a result of ground acceleration and other effects associated with the earthquake.

Since ordnance use would occur in existing hazard and target areas (i.e., previously disturbed areas), no beneficial or adverse soil erosion impacts would occur from live-fire activities. Munitions use associated with training activities would range from small arms fire to 2,000-pound GBUs (see [Table 2-17](#)) on new and existing target areas, which would potentially leave metal bullets and casings in the environment and propellants near firing positions. Acidic soils (with a pH less than 5.5), such as those present in some areas of DTA-West, have the capacity to dissolve and mobilize metals contained in used munitions. See Section [3.9.6](#) for additional information regarding dissolution of metals in soil.

YTA STUDY AREA

Impacts associated with locating the JAGIC in the Stuart Creek Impact Area, within YTA, would be similar to those described for the DTA Study Area.

TFTA STUDY AREA

Impacts associated with locating the JAGIC in the Blair Lakes Impact Area, near the southern boundary of TFTA, would be similar to those described for the DTA Study Area.

Site Selection Criteria and Best Management Practices

Since the construction of JAGIC components would result in greater than 1 acre of ground disturbance, USAG-FWA would submit a Notice of Intent (NOI) to ADEC at least 7 days prior to the implementation of the project. Construction activities would be undertaken in compliance with a project-specific National Pollutant Discharge Elimination System (NPDES) General Construction Permit and the implementation of an SWPPP would also be required. Building designs would be consistent with EPA and State of Alaska Construction General Permit SWPPP Requirements as well as Fort Wainwright’s SWPPP in order to minimize runoff contamination. In addition, building, infrastructure, and roadway construction would adhere to all applicable DoD and Army guidelines for protection of soils, prevention of soil erosion, and prevention of permafrost degradation. See Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, for information on how the Army manages natural resources on Army lands in Alaska and ongoing measures that would apply to the proposed action.

Pre-planning for siting of new infrastructure or new activities at ranges or on training areas requires coordination with the USARAK IRO. The USARAK IRO and USAG-FWA Environmental Division review the range user’s proposal and work directly with the (Air Force/proponent/user) to select a location suitable for the proposed purpose, while also considering a range of environmental, operations, and land use constraints. These considerations, as well as information from the ITAM, RTLA, and

LRAM programs would factor into site selection and specific restrictions or BMPs that the proponent must agree to follow. This includes periodic or post-activity assessments, restorative actions, and site clean-up.

Any new facility construction would be completed in compliance with guidelines established in Executive Order (EO) 12699, *Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction*. In addition, any new construction, including facilities and infrastructure, would adhere to guidelines established by DoD and Army (or DOT/AAHSTO national standards) for earthquake resistance. USAG-FWA would also ensure new facilities are not constructed on or in proximity to active seismic faults, and if necessary, would consult with the USGS in regard to the location of facilities on JAGIC and distance to active faults.

3.9.5.3.2 No Action

Under the No Action Alternative, the JAGIC complex would not be created on DTA, YTA, or TFTA and conditions would remain as described in Section [3.9.5.1](#).

3.9.5.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.9.5.3.1](#).

3.9.6 Water Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6.

3.9.6.1 Affected Environment

There are three JAGIC study areas for this proposed action: the Oklahoma Impact Area in DTA, the Stuart Creek Impact Area in YTA, and the vicinity of the Blair Lakes Impact Area in TFTA.

One study area involves locating the JAGIC in the central area of DTA-West next to the western boundary of the Oklahoma Impact Area. The Oklahoma Impact Area is in the center of DTA, extending between Delta Creek and One-Hundred-Mile Creek up to the confluence of these two waterways. Delta Creek and One-Hundred-Mile Creek drain into the Tanana River. Delta Creek originates from meltwater from the Trident and Hayes Glacier and has extensive sections of abandoned floodplain terraces above the currently active braided floodplain. One-Hundred-Mile Creek is a clear water stream originating the foothills of the Alaska Range. Along the east side of One-Hundred-Mile Creek are numerous kettle ponds. Large quantities of groundwater are available from the alluvial fan deposits and floodplain deposits in this area. Wetland coverage in this area is approximately 86 percent.

The second study area is in the Stuart Creek Impact Area of YTA. The Stuart Creek Impact Area, including Stuart Creek and Globe Creek, is in the Southern Fork Chena River watershed. The Southern Fork Chena River is a highly sinuous, meandering stream surrounded by rounded hills. Large quantities of groundwater are available in the alluvium of the creek and river valleys. The wetland coverage in the JAGIC study location near the Stuart Creek Impact Area is 23 percent.

The third study area is the Blair Lakes Impact Area. The Blair Lakes Impact Area lies to the west of the Blair Lakes in the south-central portion of TFTA. It runs from the southeast to northwest across the headwaters of Willow Creek and Clear Creek. Willow Creek and Clear Creek flow into the Tanana River. There is substantial surface and groundwater flow in the area, with small streams forming a dense

network of nearly straight channels. Thermokarstic topography is common in this area (USACE 1999). Wetland coverage near the JAGIC study area is 76 percent.

3.9.6.2 Impact Assessment Methodology

The general methodology for evaluating water resources is described in Section [3.2.6.2](#).

3.9.6.3 Environmental Consequences

3.9.6.3.1 Proposed Action

The increased use of munitions and sedimentation from road and facilities construction and off-road maneuvering could impact surface and groundwater quality. Construction footprints of the roads, urban center, and support facilities could alter the drainage pattern or encroach on the floodplain of creeks and rivers or result in the fill or conversion of wetlands.

Munitions use would be adjacent to existing dudded ranges and involve the construction of new targets and ranges. Munitions would range from small arms fire to 2,000-pound GBUs (see [Table 2-17](#)). The small arms fire and larger projectiles leave metal bullets and casings in the environment and propellants near the firing positions. The high-explosive munitions like the GBU-32 and hell fire missiles leave trace amounts of explosive residue. The greatest potential for water quality impacts are from duds or low order detonations of high-explosive munitions (Shaw et al. 2001). As discussed in Section [3.2.6.3.1](#), preliminary water quality results indicate that explosive residues have not migrated outside of impact areas (USARAK 2006-2). Based on previous studies (USACE 2004) contaminants are generally in the parts per billion in the impact areas but can be locally higher (parts per million) near UXOs. The increase in ordnance use could result in potential adverse impacts to surface and groundwater quality. With management actions, the adverse impacts to surface and groundwater quality could be reduced to not significant.

The proposed action would have potential adverse impacts on surface water quality, primarily resulting sedimentation from off-road maneuvering, land disturbance during road construction and establishment of new or increased use of water crossings. By implementing the mitigation measures in the following sections impacts on surface water quality could be reduced to not significant.

The proposed action would result in a potential adverse but not significant impacts to groundwater. Off-road maneuvering compacts the soil which could result in an increase in overland flow and reduced groundwater recharge. The minor adverse impacts on groundwater recharge could be reduced by allowing some training areas to rest for a full freeze-thaw cycle, which would reduce the amount of soil compaction.

The construction of new roads could impact the surface hydrology and alter the drainage patterns. Roads' culverts can focus water flow into selected channels while cutting off overland flow and flow through wetlands. The increase in flow in selected locations at culvert can have downstream impacts through the incision of the channel and streambank erosion. The decrease in overland flow and decreased water flow through wetlands can alter the hydrologic regime by decreasing flood retention of the watershed and decreasing the travel time of stormwater runoff. Hydrologic investigations are needed to ensure that culverts installed along the proposed roads would not produce a discernable change in the hydrologic flow regime of the area. Without additional details on the road alignments and hydrologic investigation of the road alignments, it is not possible to determine the significance of the potential adverse impacts by the proposed action on the surface hydrology.

The proposed action would result in adverse impacts on wetlands, primarily from the conversion and filling of wetlands associated with building new training roads and installing urban centers and support facilities. The proposed action would utilize existing roads where possible and minimize impacts on wetlands and critical habitat. Nonetheless, in some portions of the JAGIC study locations wetlands are the predominant landscape feature (86 percent near the Oklahoma Impact Area). In the wetland-rich areas it would be difficult to avoid filling or converting wetlands. To have year-round access, raised gravel roadbeds would be required. In addition, military-related damage to wetlands can occur from off-road maneuvers during the summer when wetlands have thawed. The off-road impacts are less harmful during the winter when wetlands are frozen and snowpack protects vegetation. As result of wetland disturbance and degradation, the surrounding environment can be affected by increase in peak flow during runoff events, decrease in flow volumes during low flow, loss of erosion control, loss of fish and wildlife habitat, and loss of filtering capacity of sediments and pollutants in the system.

If the proposed action area is within a wetland area as confirmed by the existing wetland inventories and site visit, Environmental Resources Division staff would request a Jurisdictional Determination by the USACE. The USACE may conduct a site visit and complete a wetland delineation or require one be conducted by USAG-FWA. The USACE would recommend the type of wetland permit application to submit. As a condition for receiving these permits, USAG-FWA would comply with all permitting conditions designed to mitigate impacts on wetlands. Without additional detailed wetland surveys of the location of the JAGIC facilities, it is not possible to determine the significance of the potential adverse impacts on wetlands.

Surface water quality

- Monitor water quality for metals and explosive residues in upstream and downstream of the target arrays and in the shallow groundwater downstream of the target arrays. The water quality monitoring would be done under the guidelines established in the INRMP (USARAK 2006-2).
- Track UXO from the training exercises as part of the data collection system which was established as mitigation in the *Alaska Army Lands Withdrawal Renewal Final Legislative EIS* (USARAK 1999-1).
- Design drainage to accommodate general local snowmelt runoff each spring and rainfall events throughout the year. As necessary, conduct hydrological investigations, improving road designs to minimize concentrated surface water flows along these roads during flooding events.
- Where possible, conduct vegetation clearing activities during the winter months when soils are frozen.
- Adhere to the SWPPP during construction of the JAGIC.
- Control sediment transport through utilization of BMPs for erosion and sediment control which could include but is not limited to silt fencing, straw waddles, and stormwater retention/detention basins during construction.
- Keep all construction staging, fueling, and servicing operations at a minimum of 100 feet from surface waters.
- Employ SPPCP measures to prevent spills and effectively address cleanup strategies before potential spill contaminants could reach water resources.
- Stabilize all disturbed areas resulting from project construction using native vegetation to minimize erosion and subsequent sedimentation of wetlands and streams.

- Schedule most off-road maneuvering during the winter, when the soil is frozen and the vegetation is covered by a protective snowpack, which limits the ground disturbance and the resulting erosion potential for the soils.
- Rehabilitate maneuver trails and areas on a rotational basis to allow the freeze and thaw process to eliminate compaction and reduce the chance of channelized flow.

Floodplains and waterways

- Avoid the placement of new target arrays in the floodplains of creeks or rivers or near water bodies, where erosion could transport explosive residues into creeks, rivers, lakes, or ponds.
- Construct permanent low-water crossings (i.e., ingress and egress ramps) or other features at designated vehicular stream crossings, to prevent bank erosion, widening of waterways, and increased sediment in streams.
- Harden approaches to fords and ice bridges on anadromous creeks and rivers within training areas. Ensure that crossing would occur only at these approaches. Hardened approaches would reduce the amount of bank-side erosion and sedimentation occurring at crossings.

Wetlands

- Site new training roads, urban centers, and support facilities to avoid construction in wetlands as much as practicable.
- Complete the delineation of wetlands prior to the final design of the JAGIC facilities. After wetland delineations have been completed the designs should be modified based on the delineations to avoid impacting wetlands as much as possible.
- Narrow/confine trail widths in sensitive wetland habitats or, when possible, widen trails to the upland direction to avoid wetland impact.
- Use a hydro-ax within wetlands to reduce impacts on hydric soils and low-lying vegetation.
- Fill areas would be minimized for wetlands through site-specific design and limiting construction staging to upland areas.
- Maintain natural drainage patterns by the installation of culverts of adequate number and size to prevent flooding or excessive drainage of adjacent wetlands.
- No fill or construction materials would be stockpiled in wetlands or waters of the United States without obtaining necessary permits. All equipment operation would be confined to the project footprint to prevent unnecessary damage to adjacent wetlands and vegetation.
- Conduct all additional avoidance, mitigation and compensation as required by terms and conditions in the USACE Section 404 permit.

3.9.6.3.2 No Action

The No Action Alternative would not provide for the construction and operation of the JAGIC. The impacts water quality or quantity, floodplains, or wetlands within the study area would be the same as the existing condition.

3.9.6.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.9.6.3.1](#).

3.9.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.9.7.1 Affected Environment

The ROI for the JAGIC proposed action encompasses the central area of DTA-West, the Stuart Creek Impact Area within YTA, and the Blair Lakes Impact Area in the southern portion of TFTA. DTA-West is a 571,995-acre training area located in the Tanana River Valley. YTA is a 249,552-acre training area just east of Fairbanks, and TFTA is a 653,746-acre training area south of Fairbanks.

MUNITIONS-RELATED RESIDUE

ALCOM currently conducts a number of training activities in DTA, the Stuart Creek Impact Area within YTA, and the Blair Lakes Impact Area in TFTA, all of which generate munitions-related residue or range residue. In general, munitions-related residue sources include practice bombs, expended artillery, small arms and mortar projectiles, bombs and missiles, rockets and rocket motors, grenades, incendiary devices, experimental items, demolition devices, and any other material fired on or upon a military range. More specific to the JAGIC, munitions-related residue sources would include: small-arms munitions; 105-mm mobile gun system (MGS); tube-launched, optically-tracked, wire-command data link, guided missile (TOW)-2B antitank missiles; 40-mm target practice tracer (TPT) grenades; 60-, 81-, and 120-mm mortars; 105- and 155-mm howitzers; 30-mm chain gun; 2.75-inch practice rockets; Hellfire missiles; and GBU-10, -12, -16, -31, -32, and -38 bombs.

The expenditure of live ammunition or detonations has the potential to release hazardous chemicals or other elements, such as heavy metals, into the environment. Munitions that fail to detonate properly (duds) and munitions that only partially detonate (low-order detonations) can result in the deposition of munitions residues (explosives and metals) at impact sites. Duds and low-order detonations have the potential to create environmental contamination by the leaching of their explosive filler into soil, sediment, surface water, and groundwater.

CONTAMINATED SITES

There are no CERCLA Superfund sites listed on the National Priorities List in DTA, YTA, or TFTA portions of the ROI for JAGIC. There is a single site listed on the ADEC CSP database in the DTA portion of the JAGIC ROI: CSP Site 4309, Oklahoma Range Hillbilly Lake Blivit Failure. There are no sites listed on the ADEC CSP database in the YTA portion of the JAGIC ROI. Five sites are listed on the ADEC CSP database in the TFTA portion of the JAGIC ROI: CSP Sites 354, 355, 356, 357, and 358 ([Table 3-89](#)).

The Army Environmental Restoration database lists a single restoration site under the ROI of JAGIC: Site FTWW-008-R-01, Bombing Area Between Fort Wainwright and DTA (USAEC 2010).

3.9.7.2 Impact Assessment Methodology

The general methodology for evaluating hazardous materials and waste is described in Sections [3.1.7.1](#) and [3.1.7.2](#).

Table 3-89. Contaminated Sites in Joint Air–Ground Integration Complex Region of Influence

CSP Site Number	Site Name	Description	Site Status	Training Area
4309	Oklahoma Range Hillbilly Lake Blivit Failure	150-gallon diesel fuel release	Open	DTA
354	Eielson AFB (OU-1) (SS50) Blair Lakes	Contaminated soil and groundwater from spill of heating oil from facility storage tank	Open	TFTA
355	Eielson AFB (OU-1) (SS51) Blair Lakes	Diesel fuel–contaminated soil and groundwater from unknown source	Open	TFTA
356	Eielson AFB (OU-1) (SS52) Blair Lakes	Diesel fuel–contaminated soil and groundwater from pipe leak	Open	TFTA
357	Eielson AFB (OU-1) (SS53) Defueling Pump	Contaminated soil from helicopter fuel spill	Cleanup Complete	TFTA
358	Eielson AFB (OU-1) (DP54) Blair Lakes DRM	Buried drums of unknown material	Cleanup Complete	TFTA

Key: AFB=Air Force Base; DTA=Donnelly Training Area; TFTA=Tanana Flats Training Area.

3.9.7.3 Environmental Consequences

3.9.7.3.1 Proposed Action

GENERAL HAZARDOUS MATERIALS AND WASTE

The proposed action is a JPARC joint and combined live-fire training capability. The JAGIC would consist of target arrays with service roads, range support buildings, parking areas, range towers, convoy live-fire routes, urban centers, and an area for Service rocket firing. There are six ADEC CSP sites in the JAGIC ROI. The project proponents would utilize the range Institutional Control map to avoid these CSP locations when siting project components. If sites could not be avoided, established BMPs/SOPs would be followed. Impacts associated with potentially contaminated soils and spills of POLs would be similar to those described for the Enhanced Ground Maneuver proposal. No beneficial or adverse hazardous materials related impacts would occur in association with this proposed action.

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

Increased munitions use over baseline conditions would result in potential munitions related hazardous materials impacts. Munitions fragments and residues would be generated as a result of the proposed JAGIC action. The munitions use would be adjacent to existing dudded ranges and involve the construction of new targets and ranges. Munitions would range from small arms fire to 2,000-pound GBUs (see [Table 2-17](#)). The small arms fire and larger projectiles would result in discarded metal bullets and casings in the environment and propellants near the firing positions. The high-explosive munitions, such as the GBU-32 and hell fire missiles, would discard trace amounts of explosive residue. The greatest potential for soil and surface water quality impacts would be from duds or low order detonations of high-explosive munitions (Shaw et al. 2001). As discussed in Section [3.2.7.3.1](#), preliminary water quality results indicate that explosive residues have not migrated outside of impact areas (USARAK 2006-2). Based on previous studies (USACE 2004), contaminants are generally in parts per billion concentrations in the impact areas, but can be locally higher (ppm) near UXOs.

These impact areas would be managed in accordance with current Federal, State of Alaska, Air Force, and Army regulations for the management, safe handling, and disposal of hazardous waste and materials associated with live and inert ordnance and UXO, as the result of training exercises at the proposed

JAGIC. Existing mitigation measures described in Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, would apply to this proposed action. For example, UXO from the training exercises would be tracked as part of the data collection system that was established as mitigation in the *Alaska Army Lands Withdrawal Renewal Final Legislative EIS* (USARAK 1999-1). This data collection system was created to incorporate munitions expenditure reports, number of duds in an area, chemical components of munitions, and biohazards of each chemical. This information would be used by range personnel to manage munitions-related hazardous materials generated in association with the proposed action.

Pre-planning for siting of new infrastructure or new activities at ranges or on training areas requires coordination with the USARAK IRO. The USARAK IRO and USAG-FWA Environmental Division review the range user's proposal and work directly with the (Air Force/proponent/user) to select a location suitable for the proposed purpose, while also considering a range of environmental, operations, and land use constraints. These considerations, as well as information from the ITAM program would factor into site selection and specific restrictions or BMPs that the proponent must agree to follow. This includes periodic or post-activity assessments, restorative actions, and site clean-up. With implementation of these SOPs, no beneficial or adverse hazardous materials impacts would occur in association with munitions use.

3.9.7.3.2 No Action

Under the No Action Alternative, there would be no creation of the JAGIC. Therefore, hazardous materials related impacts would not occur.

3.9.7.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.9.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.9.8.1 Affected Environment

The proposed study locations for the JAGIC include DTA, YTA and TFTA. As for the other programmatic projects, study areas for the JAGIC proposed project are large and based upon entire training areas. The biological resources likely to occur within these proposed study areas are described in detail in Sections [3.3.8](#) (DTA), [3.7.8](#) (TFTA), and [3.8.8](#) (DTA, YTA, and TFTA).

Major land types that occur within the JAGIC proposed study locations are presented in [Table 3-90](#).

Important known habitats for wildlife species that occur within the JAGIC proposed study locations are presented in [Table 3-91](#).

Table 3-90. Land Types Associated with the Joint Air–Ground Integration Complex Project

Study Area	Spruce and Broadleaf Forest	Open and Closed Spruce Forest	Spruce Woodland/ Shrub	Open Spruce and Closed Mixed Forest Mosaic	Open Spruce Forest/ Shrub/Bog Mosaic	Closed Mixed Forest	Closed Spruce Forest	Gravel Bars	Alpine Tundra and Barrens	Dwarf Shrub Tundra	Tall and Low Shrub	Tall Shrub	Glaciers and Snow
	Acres (hectares)												
DTA	62,837 (25,429)	220,914 (89,401)	56,645 (22,923)	18,179 (7,357)	163,022 (65,973)	0	0	50,284 (20,349)	4,188 (1,695)	6,172 (2,498)	43,026 (17,412)	5,770 (2,335)	247 (100)
YTA	142,364 (57,613)	27,971 (11,319)	16,680 (6,750)	548 (222)	36,710 (14,856)	0	1,481 (600)	0	0	0	3,889 (1,574)	27,640 (11,186)	0
TFTA	145,802 (59,004)	97,028 (39,265)	3,284 (1,329)	19,335 (7,824)	379,859 (153,723)	4,498 (1,820)	0	11,555 (4,676)	0	53 (22)	66 27	5,679 (2,298)	0

Key: DTA=Donnelly Training Area; TFTA=Tanana Flats Training Area; YTA=Yukon Training Area.

Source: USGS 1991.

Table 3-91. Wildlife Habitats Associated with the Joint Air–Ground Integration Complex Project

Study Area	Moose Winter Habitat	Moose Rutting/Calving Habitat	Caribou Winter Habitat	Caribou Calving Habitat	Waterfowl General Habitat	Dall Sheep Winter Habitat
	Acres (hectares)					
DTA	523,601 (211,894)	361,113 (146,137)	509,351 (206,127)	404,398 (163,654)	284,015 (114,937)	11,155 (4,514)
YTA	82,366 (33,332)	82,366 (33,332)	20,325 (8,225)	0	14,424 (5,837)	0
TFTA	666,393 (269,680)	666,393 (269,680)	132,270 (53,528)	0	573,098 (231,924)	0

Key: DTA=Donnelly Training Area; TFTA=Tanana Flats Training Area; YTA=Yukon Training Area.

3.9.8.2 Impact Assessment Methodology

The general methodology for evaluating biological resources is described in Section [3.1.8.2](#).

3.9.8.3 Environmental Consequences

3.9.8.3.1 Proposed Action

Actions that may include ground-disturbance and consequently, vegetation clearing within the proposed study locations (DTA, YTA, and TFTA) include: target, road, building and infrastructure construction, which can result in vegetation and wildlife habitat losses and fragmentation. Construction activities can also cause animal mortality, especially for smaller, young, and less mobile species.

To reduce adverse effects, recommended siting criteria include minimizing construction in the following known sensitive habitats (different avoidance seasons apply; see the biological resources mitigations table in Appendix G, *Biological Resources*, and Figures B-11, B-13, and B-14 in Appendix B, *Definition of the Resources and Regulatory Settings*):

- Bogs and other wet habitats
- Moose calving, rut and winter habitats
- Caribou calving, rut, and winter habitats and migration routes
- Dall sheep winter habitat and migration routes
- Waterfowl general, migration stopover/resting, and nesting areas
- Swan habitats
- Brown bear seasonal habitat and fish streams
- Sensitive bison habitat
- Important fish habitat (fisheries)

Direct impacts from new road and utility corridor as well as construction of larger facilities displaces habitat, can fragment larger habitats and migration routes, and may preclude access to important habitat for some species. Indirect impacts that include allowing additional human access into areas or during seasons where it has not occurred in the past can be especially disruptive to wildlife during sensitive life

stages such as breeding, nesting, and calving/lambing. In conjunction with the Army's siting and environmental review process, coordination with ADFG and USFWS personnel would occur to minimize damage and disturbance to biological resources when siting component alignments. The biological resources mitigations table in Appendix G includes established and proposed mitigation measures that, when applied, reduce impacts on wildlife during important seasonal activities. Temporary impacts include the clearing or trampling of construction use areas and the addition of construction noise, dust, trash, weed spread, and other hazards such as potential spills. Standard BMPs and SOPs apply to reducing these types of effects (Appendix G, *Biological Resources*). Other potential long- and short-term effects from construction would be mitigated by institutional programs that include planning, monitoring, rehabilitation, and management of ecological conditions, such as the LRAM component of the ITAM program. Because the locations and specifics of construction at each training area and the biological resources that would be affected by the project are not presently known, uncertainties about biological impacts exist for this programmatic project. However, due to the extensive areas required for JAGIC development in the four training areas, the potential for significant adverse impacts from JAGIC construction and implementation exists.

3.9.8.3.2 No Action

The current amount of localized ground disturbance (from training, vehicles, and live fire) would be expected to continue and wildlife using the area would be expected to remain active in occupied habitats.

3.9.8.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.9.8.3.1](#).

3.9.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.9.9.1 Affected Environment

DTA, YTA, and TFTA encompass the ROI for the JAGIC proposed action. The DTA and TFTA portions of the JAGIC affected environment are the same as described in Section [3.2.9.1](#), Realistic Live Ordnance Delivery. The YTA portion of the JAGIC affected environment is the same as described in Section [3.4](#), Expand Restricted Area R-2205.

3.9.9.2 Impact Assessment Methodology

The methodology used for the analysis of potential impacts on cultural resources for the proposed JAGIC action is the same as the methodology applied to the analysis of the EGMS action (Section [3.8.9.2](#)).

3.9.9.3 Environmental Consequences

3.9.9.3.1 Proposed Action

This action would create a JAGIC for joint and combined live-fire training ([Figure 2-14](#)) to allow Army combined arms capabilities to jointly operate with the Air Force, Navy and Marine air-to-air and

air-to-ground capabilities, along with Special Operations Forces. The JAGIC would be located in DTA, YTA, or TFTA.

There is the potential for impacts on cultural resources from the construction of the JAGIC in DTA, YTA, or TFTA. Depending on where the JAGIC is created, there is the possibility that noise levels exceeding 62 dB CDNL, or 115 dB PK 15(met), would extend beyond range boundaries (see Section [3.9.2.3](#)). Prior to implementation of any element of this proposed action, the Army would comply with NHPA Section 106, including identification of historic properties, and assessment and resolution of adverse effects through consultation with Alaska SHPO and potentially affected Federally recognized tribes.

There is the potential for impacts on traditional cultural resources or Alaska Native activities from the creation of JAGIC in DTA, YTA, or TFTA. Although no traditional cultural properties have been specifically identified in the ROI, this does not mean that none are present. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has initiated government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources, or Indian land under the proposed establishment of JAGIC in DTA, YTA, or TFTA (see Section [1.6.5](#)). Consultation will continue as the proposal progresses toward a definitive action.

3.9.9.3.2 No Action

Under the No Action Alternative there would be no creation of JAGIC in DTA, YTA, and TFTA. Existing use of the ranges and airspace would continue under this alternative and resources would continue to be managed in compliance with Federal law and Army regulations.

3.9.9.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.9.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.9.10.1 Affected Environment

LAND STATUS, MANAGEMENT AND USE

Land Status

This programmatic proposal essentially involves a new capability on military land of DTA, YTA, or TFTA as shown in [Figure 2-14](#). A small portion of the proposal area represented extends to the south of TFTA into mostly State-owned non-military land; however, this is not a definitive layout for the proposed complex.

Land Management and Use

These military areas are managed and planned according to current INRMPS, with supporting direction from the RTLP and RDP. Further description of military uses on the proposal areas is provided in Section [3.2.10.1](#) (DTA and TFTA), Section [3.3.10.1](#) (DTA-East), and Section [3.4.10.1](#) (YTA). Also, refer

to [Figure 3-22](#), [Figure 3-28](#), and [Figure 3-32](#) for information on military and public access on these training areas.

All the lands directly adjacent to DTA, YTA, and TFTA are within the ETAP, and under the management of ADNR. This plan is currently under development. The legislatively designated Chena River State Recreation Area borders YTA to the northeast. Tanana Valley State Forest occupies several non-contiguous parcels throughout the proposal area, providing important wildlife habitat, forest products, and hunting opportunities. [Figure 3-40](#) shows the relationship of preliminary JAGIC sites with surrounding military and non-military areas and resources.

PUBLIC ACCESS

Land Access

Access and use to military lands under consideration for enhanced ground maneuvers are described above in Section [3.2.10.1](#) (for DTA and TFTA), Section [3.3.10.1](#) (for DTA-East), and Section [3.4.10.1](#) (for YTA). RS 2477 trails within the area of influence of this proposal include Bonnifield trail (RST #462), Donnelly Dome: Old Valdez Trail Segment (RST# 695), and Donnelly-Washburn (RST #64). These trails are listed in [Table 3-92](#) and shown on [Figure 3-40](#).

Table 3-92. Public Access within the Joint Air–Ground Integration Complex Proposal Area

Public Access	Designation	RST #
Bonnifield Trail	RS 2477	RST #462
Donnelly Dome/Old Valdez trail	RS 2477	RST #695
Donnelly-Washburn	RS 2477	RST #64

Source: ADNR 2009-2, ADNR 2009-3.

Aerial Access

Public aerial access to DTA, TFTA, and YTA is described in Sections [3.2.10.1](#) and [3.4.10.1](#).

Navigable and Public Waters

There are no navigable rivers within the proposal footprint.

RECREATION

Recreation on Military Lands

Public access and recreational use in the proposal area is described in Sections [3.2.10.1](#) (for DTA and TFTA), [3.3.10.1](#) (for DTA-East), and [3.4.10.1](#) (for YTA).

Recreation on Non-military Lands

There are no Federally designated recreation lands within the ROI of the proposed action. The State-designated Chena River State Recreation Area occurs within the ROI for this proposal.

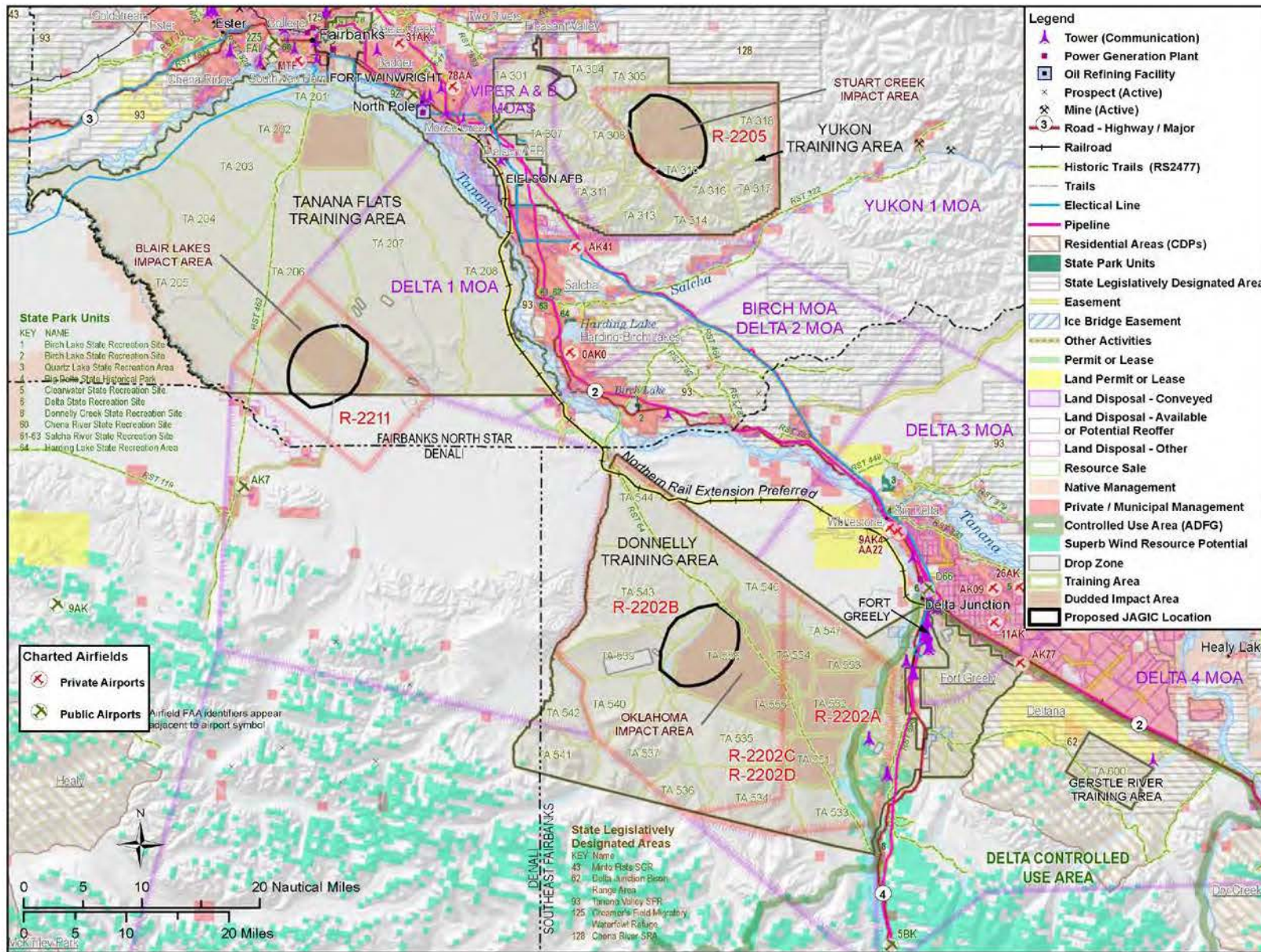


Figure 3-40. Military Uses, Special Use Areas, General Land Status and Productive Uses – Joint Air-Ground Integration Complex Proposal Area

Source: ADNR 2009-1, ADNR 2009-2, ADNR 2009-3, ADNR 2009-4, ADNR 2011-2, ADNR 2011-3, ADNR 2011-4, ADNR 2011-7, AWS TrueWind/NREL 2003, FNSB 2006, NGA no date, SAIC 2011-1, SAIC 2011-3, USCB 2010-1, USGS 2005-1, USGS 2005-2

3.9.10.2 Impact Assessment Methodology

General methodology pertaining to evaluating land use, public access and recreation are described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The primary sources of impacts from this proposal on land use, including public access and recreation, include potential noise effects from military overflights on underlying uses, effects from using countermeasures and expending weapons on land uses and recreation, effects of ground-based military operations (such as vehicle and convoy operations on range roads, ground maneuver training both on range roads and cross country, pedestrian activities and bivouacking), and effects of developing and using new military facilities and infrastructure on military land on existing non-military permitted uses, access and recreation.

The method for assessing impacts is similar to that described in Section [3.2.10.1](#). This assessment is based on the following assumptions:

- Future SDZs for the new JAGIC would be entirely contained with the boundary of military land utilizing existing impact areas.
- The JAGIC would utilize grand maneuver assets and areas for integrated training (see Section [3.8.10.3](#)).
- JAGIC operations would also use overlying and contiguous SUA.

3.9.10.3 Environmental Consequences

3.9.10.3.1 Proposed Action

The primary source of impact to land use, public access and recreation would result from lack of availability to gain to training areas while they are actively in use for military operations. Seven battalions would use the JAGIC for a minimum of 98 days each year. Additionally, JIIM utilization of the JAGIC can occur on up to 242 days annually. Army training will not be limited by recreational activities. The Army will continue to evaluate access during training cycles, but not to the detriment of Soldier readiness to conduct the assigned mission.

Feasible locations for the JAGIC would utilize existing target and impact areas that have historically supported hazardous weapons firing. The proposed JAGIC facilities and activities are consistent and similar to the spectrum of current military uses occurring at the active impact areas on the three training areas. These areas are off-limits to the public. The JAGIC may potentially expand into some areas that are off limits when JAGIC operations are ongoing, including Chena River State Recreation Area to the north and east, and both private and Native corporation lands to the northwest. Nonetheless, potential impact on land use, public access, and recreation is relatively low because the new complex would function entirely within military land and existing restricted airspace, and public use is generally low except for specific seasons. Recommended criteria for minimizing potential impacts on land use (non-military), access and recreation are described below.

- Avoid extending SDZs beyond military land. Orient new targets and firing locations accordingly to achieve this criteria. If not possible (see [Figure 3-40](#), TFTA schematic layout), future proposals would need to clearly define terms and conditions for exclusive use of affected non-military land with ADNR and any affected private owners/entities.

- Subsequently, USARAK could work with ADFG and ADNR to notify and publish training schedules well in advance so that public users can plan their hunting options accordingly.
- To the extent possible, access should be maintained for public recreational use, hunting and other subsistence uses on the installation in the locations where these activities are most frequent or important. Patterns of use taken from current and past USARTRAK data can provide information for this screening criteria, as well as input from ADFG. Scheduling battalion maneuver events outside of popular hunting areas and seasons would reduce potential impacts. Strategies to achieve this criteria also include rotating or selecting areas for training that have lower value or less overlap with public uses and hunting.
- Planning for future ground maneuver areas should evaluate how integrated, multi-echelon training may expand or shift areas exposed to 62 dB CDNL or above. This may be particularly important for activities and firing points closest to range boundaries and more urbanized areas around Fort Greely and Delta Junction. Confining 62 dB CDNL noise exposure within military land boundaries would reduce potential conflicts with surrounding jurisdictions and landowners.
- Sites for new bridges and roads should avoid existing low-water river crossings used for public access for hunting and recreational uses.
- New road alignments should avoid displacing existing trails that currently provide access for public recreational use. Proposals could include replacement trails if necessary, or allow joint-use of enhancement infrastructure for non-military access when it does not interfere with the military mission.
- Construction of new infrastructure, targets and urban operations areas may extend over multiple years. Where construction overlaps spatially with locations that have natural resource value or recreational and public use value, timing restrictions may be warranted. Construction activities (e.g., noise and traffic generating) should be minimized during times that are sensitive or particular resources.

3.9.10.3.2 No Action

Under the No Action Alternative, construction and use of a JAGIC would not occur. Operations would continue using current range assets and at the same level of use. No impact would result on land use, public access or recreation.

3.9.10.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.9.10.3.1](#).

3.9.11 Infrastructure and Transportation

Transportation routes, electricity, water, sewage, and natural gas utilities are necessary to support various missions, as well as to maintain the residences of military personnel. Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for additional information regarding transportation and utility resources throughout this region.

3.9.11.1 Affected Environment

INFRASTRUCTURE

Electrical Transmission

Doyon Utilities owns, operates, and maintains the electric power generation and distribution systems, central heat and heat distribution systems, natural gas distribution systems, potable water distribution systems, and wastewater collection systems of Fort Greely. Aurora Energy serves as a subcontractor for the operation of electric and heat utilities and power generation assets. In addition, Doyon owns, operates, and maintains the electric power distribution systems of YTA.

YTA is supplied with power from GVEA and by the Eielson AFB power plant (GVEA 2011). Electric power distribution lines extend northeast into and around the Chena River Research Site and along primary roads within the training area. Where overhead power is not available, constant-run generators are used for power generation.

Electric power distribution within DTA is limited to the area east of the Delta River. Even within that area, however, not all range facilities have electric power. DTA falls within the GVEA service area (GVEA 2011).

Currently no commercial power is available in TFTA. GVEA's Northern Intertie is routed along the northwestern and northern sections of TFTA.

Water Supply and Wastewater Treatment

Doyon Utilities has assumed ownership, operation, and maintenance of the potable water distribution systems and the wastewater collection systems of Fort Greely and YTA. Regulations covering water appropriation are contained in the AAC at 11 AAC 93.010-970. Neither the Alaska Constitution nor the Water Use Act differentiate between surface and groundwater uses.

Natural Gas and Oil Pipelines

A total of 2.25 miles of natural gas pipelines are present within the proposed maneuver space areas within YTA.

TRANSPORTATION

Roads, Bridges and Trails

No bridges lie within the JAGIC proposed action area. Approximately 20 miles of roadway is present within the JAGIC project area boundaries. This unnamed road falls entirely within YTA underneath the JAGIC footprint. Approximately 16 miles of trails are present within the JAGIC proposed action area boundaries. These trails fall within YTA, within TFTA, or outside current DoD facility boundaries. Individual trails and their distances and names (where available) are presented in [Table 3-93](#).

Table 3-93. Trails in Joint Air–Ground Integration Complex Areas

Name	On Facility	Miles
Tractor Trail	Yukon Training Area	8.50
N/A	DTA	0.54
N/A	Tanana Flats	7.37

Key: N/A=not applicable; DTA=Donnelly Training Area.

Source: ADNR 2009-2, ADNR 2009-3.

Rail

No rail lines or associated railroad infrastructure intersects with the proposed action area.

3.9.11.2 Impact Assessment Methodology

The general methodology for evaluating infrastructure and transportation is described in Section [3.2.11.2](#).

3.9.11.3 Environmental Consequences

3.9.11.3.1 Proposed Action

The JAGIC would require service roads, range support buildings, parking area, range tower, convoy live-fire route, urban centers, and an area for Service rocket training. The range would include realistic targets, scoring, and maintenance access by road or air. In addition, the ground range would need road access. Currently, extensive roads and trails exist in the study areas to support proposed action. Within the three study areas, there are 20 miles of existing road and 16 miles of trail. The Richardson Highway provides statewide access to these project areas and is a north-south connection between Fairbanks and Valdez. The Richardson Highway provides access to a network of five other highways. Year 2030 traffic volumes are forecast along most segments of the Richardson Highway between 1,500 and 4,500 AADT. Based on these forecast traffic volumes, a qualitative planning level assessment of the Richardson Highway by ADOT&PF revealed no major roadway capacity constraints over the near- and long-term (ADOT&PF 2010-1).

The range will need to be close to a railhead or road to minimize the travel distance for ground forces. Currently, extensive rail access is planned to provide additional access for this area with new rail lines are included in the Access to Joint Tanana Military Training Complex and the Denali Park Passenger Train Turnaround Track. The Northern Rail Extension project would construct a new line between North Pole and Big Delta (ADOT&PF 2010-1). Specific alternatives for direct access to DTA, YTA, and TFTA alternatives are not developed to the point where detailed decisions or plans can be made.

No bridges, natural gas pipelines, oil pipelines, water and sewer infrastructures are identified in this study area.

Power for scoring would be provided by generators or power lines, and communications may be transmitted by microwave or fiber optic cable. Most permanent electrical infrastructure is within the facilities at Eielson AFB and Fort Greely. In the past, if Fort Greely electrical loads exceed the 2.5-MVA transformer rating, diesel generators were used to meet peak loads. Doyon Utilities recently constructed a new 138 kV Switching Station, new 138 kV Substation with 20 MVA transformer to increase energy capacity at Fort Greely (Doyon 2011-1). Utilities needed for scoring would require operations and maintenance support.

Within the proposed JAGIC areas, electrical distribution lines extend northeast into and around the Chena River Research Site and the area east of the Delta River as well as along the northwestern and northern sections of TFTA. No commercial power is available in TFTA. Specific alternatives for electrical requirements for DTA, YTA, and TFTA are not developed to the point where specific decisions or plans can be made. In general, the proposed expansion of infrastructure discussed would be a net positive impact for Transportation and Infrastructure as the expansion of access and utility of the area would be beneficial to current users. Additional details regarding specific needs for power lines, fiber optic cable, and road construction requirements would be required to evaluate potential impacts.

Three proposals currently exist for the creation of the JAGIC. The first is to locate the JAGIC in the central area of DTA-West, proximate to the western boundary of the Oklahoma Impact Area. The complex would include the use of the live-fire village at the end of the fire line located under the existing R-2202, from the

Control Tower to the west. The complex would be able to use existing supporting infrastructure and access roads and is proximal to existing infrastructure at Fort Greely. Under this proposal, no net impacts would be expected, as the complex would be able to use existing supporting infrastructure and access roads.

A second proposal would be to locate the JAGIC in the Stuart Creek Impact Area within YTA. The complex would be able to use existing supporting infrastructure and access roads and is proximal to existing infrastructure at Eielson AFB. A net positive gain to transportation and infrastructure could be expected if additional infrastructure is required to facilitate use of the JAGIC.

A third proposal would be to locate the JAGIC in the Blair Lakes Impact Area near the southern boundary of TFTA under the existing R-2211. There is already robust targetry in the Blair Lakes Impact Area. Impacts are identical to those discussed under the proposed action in YTA.

3.9.11.3.2 No Action

No impacts on infrastructure and transportation would occur under the No Action Alternative.

3.9.11.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.9.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.9.12.1 Affected Environment

Impact areas on YTA, TFTA, and DTA are all candidates for the siting location of the JAGIC Range Complex. The areas of the three training areas are located in the Denali Borough, FNSB, and the Southeast Fairbanks Census Area which is therefore defined as the ROI for the JAGIC proposed action. The affected environment for the JAGIC proposal is similar to the area described in Section [3.2.12.1](#), Affected Environment, with the exception of the population under the airspace.

3.9.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.9.12.3 Environmental Consequences

3.9.12.3.1 Proposed Action

Impacts on socioeconomic resources under the proposed action are anticipated to be low since the siting of the JAGIC is in an impact area within an existing training area, in which there are no residential areas or economic centers. In addition, the potential for impact on public use and recreation is anticipated to be low (Section [3.9.10.3.1](#)); thus economic impacts associated with restricted access would also be low.

The ground-disturbing components of the project would include construction of realistic targets, scoring mechanisms, range support buildings, parking area, range tower, convoy live-fire route, urban centers, and an area for Service rocket training, power, communications, and service roads. In general, construction activities are anticipated to result in temporary and beneficial socioeconomic impacts that would occur only during the construction phase. The direct and indirect socioeconomic impacts

associated with this action are dependent on the construction expenditures, which are not available at this time, but should be taken into consideration during the siting criteria. No significant impacts on civilian aviation are anticipated since no aviation activities are associated with the proposed action and therefore, would not cause any impacts on the existing airspace environment that would affect socioeconomic resources (see Section [3.9.1](#)). However, further analysis is required to determine the quantitative impacts on socioeconomic resources once siting alternatives have been more thoroughly developed and expenditure data becomes available.

3.9.12.3.2 No Action

Under the No Action Alternative, socioeconomic resources would remain as described under baseline conditions.

3.9.12.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.9.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.9.13.1 Affected Environment

The ROI and affected environment for JAGIC is the same as those described for EGMS (see Section [3.7.13.1](#)).

3.9.13.2 Impact Assessment Methodology

The general methodology for evaluating subsistence is described in Section [3.1.13.2](#).

3.9.13.3 Environmental Consequences

3.9.13.3.1 Proposed Action

As described in Section [3.7.13.1](#), areas of TFTA and YTA that are accessible to the public are not managed for subsistence resources, and Alaska residents are not given priority access to subsistence resources. Therefore, siting of the proposed JAGIC within either of these areas is not expected to affect subsistence activities. However, such action may affect recreational access and public access, which are described and considered in Section [3.9.10](#). The proposal for a JAGIC in DTA may impact subsistence resources. Additional consideration or development of the proposal should address accessibility of the area, including the JAGIC, to the public, avoidance of traditional use areas for nearby communities, and the monitoring of the impacts of activities within or in the vicinity of the JAGIC area on the population and distribution of subsistence wildlife and vegetation.

3.9.13.3.2 No Action

Under the No Action Alternative, subsistence activities would continue as currently practiced.

3.9.13.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.9.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.9.14.1 Affected Environment

The affected environment for the JAGIC proposal includes one borough and one census area in which some portion of the proposal footprint is located. [Table 3-94](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children for areas comprising the proposal area. Note that the table characterizes existing population groups in the affected environment at a general level of detail and does not indicate whether the proposal would create an environmental justice effect.

The average percent minority in the proposal area is 21.3 percent in Southeast Fairbanks Census Area and 25.9 percent in FNSB, both of which are lower than the 35.9 percent average for the State of Alaska. The average percent low-income is 8.0 percent in FNSB and 11.6 percent in Southeast Fairbanks Census Area, compared to 9.6 percent for the State of Alaska. The average percent Alaska Native is 7.0 percent in FNSB and 11.5 percent in Southeast Fairbanks Census Area, both of which are less than the 14.8 percent average for the State. The average percent of children is 25.6 percent in FNSB and 26.3 percent in Southeast Fairbanks Census Area, similar to the 26.4 percent average for the State.

Table 3-94. Minority Population, Low-Income Population and Children by Area

Area	Total Population	Percent Low-Income	Percent Minority	Percent Alaska Native	Percent Children
Fairbanks North Star Borough	97,581	8.0	25.9	7.0	25.6
Southeast Fairbanks Census Area	7,029	11.6	21.3	11.5	26.3
State of Alaska	710,231	9.6	35.9	14.8	26.4

Note: Except for the low-income data, which are based on the 2005-2009 American Community Survey conducted by the Census, numbers represent 2010 decennial Census data.

Source: USC B 2010-1; 2010-2.

3.9.14.2 Impact Assessment Methodology

General Methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#) and additional methodology relevant to the six Programmatic Proposals is described in Section [3.8.14.3](#).

3.9.14.3 Environmental Consequences

3.9.14.3.1 Proposed Action

Operations at the JAGIC, which would occur in DTA, YTA, or TFTA, depending on future siting decisions, would include ground vehicles (Stryker), small arms training, indirect munitions fire, Army aviation munitions training, and Air Force aerial ordnance training. Based on a review of environmental consequences for other resources, adverse impacts could, in many cases, be reduced based on siting and operational criteria, SOPs, BMPs, and continuation of mitigation measures used previously; however, further study would be needed.

As described for the EGMS proposal, areas accessible to the public in TFTA and YTA are not managed by either the State or Federal government for subsistence, whereas those in DTA are Federally managed for subsistence. DTA is also within GMU 20D, and rural communities participating in subsistence under Federal regulations in the vicinity of DTA include Big Delta, Delta Junction, Healy Lake (High dependence), and Dry Creek (High dependence). Within this unit, rural residents may engage in subsistence hunting, for example, bison, black bear, brown bear, and other game. For fishing, the ROI is located in the Yukon-Northern subsistence area, which allows for the harvesting of a variety of fish species. As a result, siting the JAGIC in DTA could potentially have disproportionately high and adverse environmental or health effects on minority or low-income populations in communities with High dependence on subsistence.

Noise levels associated with proposed munitions training would be qualitatively similar to current munitions noise and would depend on the intensity of the training operations. The JAGIC would be located near the center of YTA. YTA is not as large as DTA and noise levels exceeding 62 dB CDNL or 115 dB PK 15(met) would potentially extend beyond DTA boundaries. The extent of noise impacts would depend on the intensity of training at the JAGIC. Delta Junction is in the vicinity but these noise levels may not extend into the community. Delta Junction has a low potential for disproportionately high and adverse environmental or health effects based on demographic data. Its population of 958 persons has a percent minority and a percent low-income that are substantially less than the surrounding Southeast Fairbanks Census Area.

The information presented below could benefit siting and operations planning by taking into account the location of jurisdictions with greater potential for environmental justice effects:

- Consider whether siting or use of an enhanced maneuver area in DTA that could affect communities with High dependence on subsistence resources, including Healy Lake and Dry Creek can be avoided or minimized and other training area utilized i.e., YTA and TFTA.
- Further analysis may be needed to confirm whether noise levels exceeding 62 dB CDNL or 115 dB PK 15(met) would potentially extend beyond DTA boundaries, and if so, would affect any communities or inhabited areas, causing disproportionately high and adverse environmental or health effects on minority and low-income populations or children.
- If tiered environmental analysis identifies other unmitigated impacts in the ROI, evaluate whether residents or public and private use would be affected, and if so, whether affected populations would have higher percentages of minority and low-income populations than the surrounding jurisdiction. If so, additional mitigation measures may need to be evaluated to reduce effects.
- If adverse impacts on Alaska Native activities are identified, develop case-specific mitigations that can be evaluated during the tiered environmental process to reduce the potential for disproportionately high and adverse environmental and health effects on Alaska Natives.

3.9.14.3.2 No Action

JAGIC would not be established in any of the three training areas (DTA, YTA, or TFTA) and hazardous air operations and related ground activities would not occur. No siting criteria or measures related to environmental justice are needed.

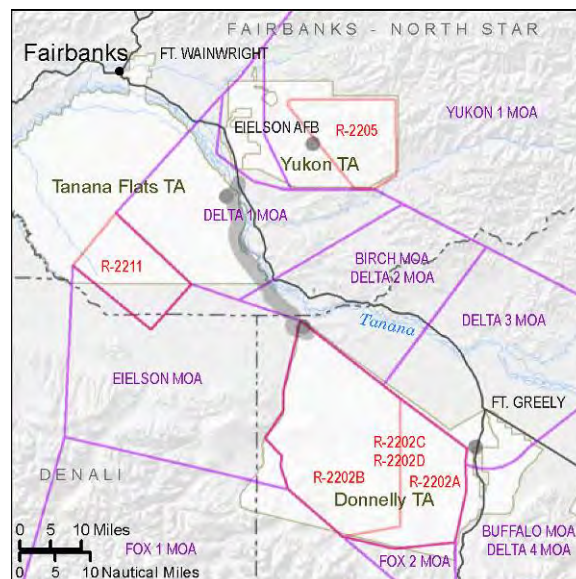
3.9.14.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.9.14.3.1](#).

3.10 INTERMEDIATE STAGING BASES (PROGRAMMATIC)

ISBs are proposed to support Soldier training and maneuvers within the JPARC and would be used to house, maintain, and stage forces before insertion into the combat training area. The ISB is normally located near but outside the training area. The proposed action would include construction and use of ISBs at four locations, each composed of permanent barracks, large parking areas, dining facilities, ammunition storage points, petroleum-oil-lubricant area, and maintenance facilities on approximately 110 acres.

This proposal considers four possible sites for developing ISBs. The composite footprint of the preliminary siting areas (gray-shaded area in the map to the right) is about 46,000 acres (72 square miles), although the footprint for developing these facilities would be a small fraction of this area (about 1 percent). The preliminary ISB siting areas would all involve withdrawn military land. Operations and use of ISBs would be non-hazardous to surrounding areas, but would be exclusively used for military purposes. Because this proposal does not involve the use of airspace, the potential for effects on airspace management and flight safety is low. In response to future mission change and force structure modernization, it is likely that the Army and other services currently training in Alaska will be required to adapt their training and testing on JPARC lands and ranges. The Army will evaluate any additional modernization and enhancement of JPARC capabilities based on future service requirements in accordance with NEPA.



3.10.1 Airspace Management and Use (No Analysis Needed)

This proposal would not involve any aviation activities beyond those helicopter operations that would provide aviation support for the ISBs. Such support would not require any changes to the existing SUA or result in any impacts on the existing airspace environment and other airspace uses. Therefore, this resource is not further analyzed for this proposal.

3.10.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.10.2.1 Affected Environment

The affected areas would be within the borders of JPARC ground training areas. These areas are exposed to varying levels of military training noise. Potential locations near the proposed rail line would, at some point in the future, experience noise generated by rail traffic. Locations near impact areas experience munitions firing and detonation noise. All potential sites are overlain by military training airspace, and experience aircraft operations noise.

3.10.2.2 Impact Assessment Methodology

Construction activity noise impacts were assessed using the same methods described for the TFTA Access Road (see Section [3.8.2.2](#)). Generalized noise levels were also estimated for transportation of

units to and from the ISBs once construction is complete. Because the ISB initiative is assessed programmatically, noise impacts are not assessed against a specific set of locations. Potential impacts of estimated noise levels on various types of locations are considered.

3.10.2.3 Environmental Consequences

3.10.2.3.1 Proposed Action

Construction activities would involve many of the same pieces of equipment used in road construction. Noise levels associated with several common pieces of construction equipment are listed in [Table 3-80](#). Construction noise would not be expected to be audible beyond the boundaries of DoD-owned land. Noise levels generated by an operational ISB would depend on the specific nature of the operations.

3.10.2.3.2 No Action

Under the No Action Alternative, the ISB would not be constructed. There would be no noise impacts under the No Action Alternative.

3.10.2.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.10.3 Safety

3.10.3.1 Affected Environment

FLIGHT SAFETY

The airfield activities that would be part of an ISB initiative would be within the existing regional airspace environment, where it is not anticipated that the associated flight operations would have any measurable effect on flight safety beyond what has been addressed for the JPARC airspace proposals.

GROUND SAFETY

The ROI for ground safety is land within and just outside YTA, TFTA, DTA, and the Fort Greely area. For this proposal, the environment affected by activities involved in range safety and control, UXO and munitions safety, public access control, and fire and emergency response would not differ from that previously described for RLOD Alternative A in Section [3.2.3.1](#).

3.10.3.2 Impact Assessment Methodology

FLIGHT SAFETY

Flight safety impacts would be determined once this becomes a definitive proposal. However, flight activities associated with a basing airfield should have minimal potential impacts associated with flight risks involving mishaps, near misses/midair collisions, and bird-aircraft strikes. Such potential for any impacts would be controlled through standing procedures and management practices that are established to prevent such risks/practices.

GROUND SAFETY

Impact assessment methodology is the same as in Section [3.2.3.2](#).

3.10.3.3 Environmental Consequences

3.10.3.3.1 Proposed Action

FLIGHT SAFETY

Flight safety impacts associated with this requirement cannot be addressed until the airfield activities are defined.

GROUND SAFETY

Range Safety and Control – There are no environmental impacts associated with range safety and control for this proposal not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Unexploded Ordnance and Munitions Safety – There are no environmental impacts associated with UXO and munitions safety for this proposal not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Public Access Control – There are no environmental impacts associated with public access control for this proposal not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

Fire and Emergency Response – There are no environmental impacts associated with fire and emergency response for this proposal not previously discussed under *Realistic Live Ordnance Delivery, Alternative A, Environmental Consequences*. Consequently, significant impacts are not expected to occur.

3.10.3.3.2 No Action

Temporary ISB facilities would continue to be used within the training areas. As a result, no impacts on public health and safety would occur.

3.10.3.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.10.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.10.4.1 Affected Environment

The proposed ISBs would potentially be located in FNSB and Southeast Fairbanks Census Area. None of the ISBs would be within the nonattainment or maintenance areas of FNSB. Table B-12 in Appendix B, Section B.4.3 provides a summary of the estimated 2008 annual emissions for the FNSB and Southeast Fairbanks Census Area.

3.10.4.2 Impact Assessment Methodology

Currently, this action is in its developmental stages and sufficient data is not available to analyze air quality impacts. Once sufficient data is available, the air quality analysis will estimate the construction emissions and the changes (increases and/or decreases) in emissions that would occur from the proposed ISBs. The air quality effects from this action will be evaluated qualitatively as the predicted emissions would be minor and intermittent in nature.

Since the affected project region for the proposed action is in attainment of all NAAQS, the analysis will use the PSD new major source threshold of 250 tons per year of each pollutant as an indicator of significance or nonsignificance of projected air quality impacts.

PSD CLASS I AREA IMPACT ANALYSIS

The closest PSD Class I area to the proposed action is Denali National Park, which is approximately 65 miles from the closest proposed ISB. Therefore, due to the proximity of the proposed action to a pristine PSD Class I area, the potential for proposed activities to affect visibility within this area will need to be analyzed.

3.10.4.3 Environmental Consequences

3.10.4.3.1 Proposed Action

Air quality impacts from construction and operational activities for the proposed ISBs would occur from (1) combustive emissions due to the use of fossil-fuel-powered equipment and aircraft, and (2) fugitive dust emissions (PM₁₀ and PM_{2.5}) due to the operation of equipment on exposed soil. Increases in emissions due to changes in operations related to the ISB action would occur primarily from combustive emissions due to the use of fossil-fuel-powered equipment and aircraft.

Information needed to calculate air emissions resulting from the proposed ISB construction activities includes the following:

- The type, horsepower, and daily and annual usage rates of fossil-fuel-powered equipment used to construct the roads associated with the proposed action
- The usage of water trucks during construction for dust control
- The surface type, length, and width of the proposed roads
- The area and heights of proposed buildings
- The distance that the trucks would travel to the materials and dumping sites

Operational information needed to calculate the air emissions resulting from increased activities associated with the ISBs action includes the following:

- The type, horsepower, and daily and annual usage rates of fossil-fuel-powered equipment associated with increased training activities for the proposed action
- Information on personnel transportation to and from the ISBs, including a breakdown of vehicle types, average distances traveled per day, and personnel numbers

The emissions factors needed to derive construction source emission rates are found in *Compilation of Air Pollution Emission Factors* (EPA 1995), and emissions inventory data produced by the mathematical

models: OFFROAD2007 for off-road construction equipment (ARB 2006-1) and EMFAC2007 for on-road vehicles (ARB 2006-2).

Emission reduction strategies that can be incorporated during construction of the ISBs include the following:

- Use water trucks to keep areas of vehicle movement damp enough to minimize the generation of fugitive dust.
- Minimize the amount of disturbed ground area at a given time.
- Minimize ground-disturbing activities in proximity to the construction area boundary.
- Discontinue proposed ground-disturbing activities within 3 miles upwind of the construction area boundary when winds exceed 25 miles per hour or when visible dust plumes emanate from the site and then stabilize all disturbed areas with water application.
- Designate personnel to monitor the dust control program and to increase dust suppression measures (e.g., watering), as necessary, to minimize the generation of dust.

3.10.4.3.2 No Action

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations in YTA, DTA, TFTA, and at Fort Greely. Therefore, the No Action Alternative would not result in any new air quality impacts.

3.10.4.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.10.4.3.1](#).

3.10.5 Physical Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5.

3.10.5.1 Affected Environment

TOPOGRAPHY

General topographic conditions for TFTA, YTA, and DTA are described in Section [3.8.5.1](#).

The proposed ISB area on TFTA is located in a level area on the banks of the Tanana River at an elevation of approximately 600 feet, sloping gently downward from southeast to northwest. Elevations of YTA in the vicinity of the Project Area are variable and rugged, with numerous peaks of over 3,000 feet and valleys of under 1,000 feet, often with sharp relief. Elevations at the proposed ISB just east of the Delta River are just over 1,400 feet, sloping upward from northeast to southwest. Donnelly Dome, a prominent glacially-formed landmark of 3,910 feet, dominates the local landscape to the south, and Granite Mountain, a 5,815 foot peak, lies to the southeast. Elevations for the ISB proposed in the northwest corner of DTA range from just under 1,000 to just over 1,200 feet, sloping from southeast to northwest. Several small ridges are located at the extreme northwest corner of DTA.

GEOLOGIC HAZARDS

Geologic hazard conditions for TFTA, YTA, and DTA are described in Section [3.8.5.1](#).

SOILS

General characteristics of soils on TFTA, YTA, and DTA are described in Section [3.8.5.1](#).

Detailed maps of soil in the Project Area are not currently available, but in general soils on TFTA are extremely acidic to neutral, have moderate to high potential for frost action, and present limitations to development due to depth to permafrost, depth to the high water table, and high organic matter content (USDA 2006). The Proposed ISB is located in the Bear Creek Lowlands, an ecological area dominated by abandoned-floodplain riverbed deposits with thin cover deposits of fine-grained sediments (USACE 1999).

YTA soils in the Project Area are extremely acidic to neutral, have moderate to high potential for frost action, and present limitations to development due to depth to permafrost, depth to the high water table, high organic matter content, and a potential for subsidence (USDA 2006). The Proposed ISB is in YTA in the Chena-Salcha Highlands, an ecological area described as having weathered bedrock in alpine areas, residual soils on upper slopes, and transported deposits in upland and lower slope areas (USACE 1999).

Generally, DTA soils in the Project Area are extremely to moderately acidic, have moderate to high potential for frost action, and present limitations to development due to depth to permafrost, depth to the high water table (especially during “wet” season), high organic matter content, and a potential for subsidence (USDA 2005).

Representative soils found in each of the Project Areas are summarized in [Table 3-95](#).

PERMAFROST

General permafrost conditions in TFTA, YTA, and DTA are described in Section [3.8.5.1](#).

Permafrost conditions in the area of the proposed ISB in TFTA are categorized as either discontinuous or unfrozen. Conditions are generally difficult to detect due to local groundwater movements, but are likely sporadic (USACE 1999). Permafrost conditions in the area of the proposed ISB in YTA are categorized as largely unfrozen, with permafrost sometimes present on northern and lower slopes and absent on southern slopes (USACE 1999). Permafrost conditions in DTA in the vicinity of the proposed ISB are variable, but portions of the ISB might be located in ecological regions where permafrost is likely to exist (USACE 2001).

3.10.5.2 Impact Assessment Methodology

The general methodology for evaluating physical resources is described in Section [3.8.5.2](#).

3.10.5.3 Environmental Consequences

This section analyzes the potential impacts on physical resources (including soils, permafrost, and seismicity) associated with the proposed action. Baseline conditions were addressed in Section [3.10.5.1](#).

3.10.5.3.1 Proposed Action

The proposed action includes the construction and use of up to four ISBs, with a combined capacity for up to 2,500 Soldiers, within existing JPARC training sites, including DTA, TFTA, and YTA. Components of the proposed action include permanent barracks, large parking areas for storage of truck and vehicular equipment, dining facilities, ammunition storage points, petroleum-oil lubricant area, and maintenance facilities. Each ISB would be approximately 110 acres and would be located near existing transportation access (roads) in order to minimize new roadway construction.

Table 3-95. Characteristics of Representative Soils Found in the Area of Proposed Intermediate Staging Bases Locations

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
Tanana Flats Training Area (see Table 3-83 for general soil types in TFTA)											
Donnelly Training Area (Fort Greely Ice Bridge)											
610	Butchlake-Southpaw complex, 0 to 35 percent slopes	Hills on moraines	-	Water: slight Wind: moderate to severe	Low to medium	Well drained	None/none	> 60	No	3.9 to 7.2	Paper birch, spruce, and aspen forest
613	Chena very fine sandy loam	stream terraces	-	Water: slight Wind: moderate	Very low	Excessively drained	Rare/none	> 60	No	3.5	White spruce and balsam poplar forest
616	Donnelly silt loam, 0 to 3 percent slopes	Stream terraces	-	Water: slight Wind: moderate	Low	Somewhat excessively drained	None/none	> 60	No	3.4	Open black spruce forest or birch scrub
617	Donnelly silt loam, 45 to 70 percent slopes	Escarpments of stream terraces	-	Water: severe Wind: moderate	High	Somewhat excessively drained	None/none	> 60	No	3.4	Open black spruce forest or birch scrub
618	Donnelly-Nenana complex, 0 to 3 percent slopes	Stream terraces	-	Water: slight Wind: moderate	Low	Somewhat excessively drained	None/none	> 60	No	3.4	Open black spruce forest or birch scrub
629	Jarvis very fine sandy loam	Floodplains	-	Water: slight Wind: severe	Low	Well drained	Rare/occasional	0 to > 60	No	6.5	White spruce, balsam poplar, and paper birch forest

Table 3-95. Characteristics of Representative Soils Found in the Area of Proposed Intermediate Staging Bases Locations (Continued)

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
630	Jarvis very fine sandy loam, flooded	Floodplains	-	Water: slight Wind: severe	Low	Well drained	Rare/ occasional	0 to > 60	No	6.5	Balsam poplar, willow, silverberry and white spruce scrub
631	Jarvis-Chena complex	Floodplains and stream terraces	-	Water: slight Wind: moderate to severe	Very low to low	Well to excessively drained	Rare/ occasional	0 to > 60	No	3.5 to 6.5	White spruce and balsam poplar, and paper birch forest
632	Jarvis-Chena complex, flooded	Floodplains and stream terraces	-	Water: slight Wind: moderate to severe	Very low to low	Well to excessively drained	Rare/ occasional	0 to > 60	No	3.5 to 6.5	Balsam poplar, willow, silverberry and white spruce scrub
639	Nenana silt loam, 0 to 3 percent slopes	Stream terraces	-	Water: slight Wind: moderate	Low	Well drained	None/ occasional	0 to > 60	No	5.9	White spruce, quaking aspen, and paper birch forest
648	Salchaket very fine sandy loam	Floodplains	-	Water: slight Wind: moderate	low	Well drained	Rare/ frequent	0 to > 60	No	9.7	White spruce, balsam, and paper birch forest

Table 3-95. Characteristics of Representative Soils Found in the Area of Proposed Intermediate Staging Bases Locations (Continued)

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
Donnelly Training Area (NW Corner)											
674	Typic Aquiturbels- Typic Histoturbels association	Outwash plains	6 to 18	Water: slight Wind: slight	High	Poorly drained	Rare/ frequent	0 to 10	Yes	2.4 to 5.0	-
678	Typic Cryofluvents- Histels-Typic Haploturbels association	Floodplains, terraces, and hills	10 to 24	Water: severe Wind: severe	High	Poorly drained to well drained	Occasional / none	0 to > 60	No	2.1 to 5.1	-
680	Typic Cryofluvents- Typic Dystrocrypts- Typic Histoturbels complex	Floodplains	-	Water: slight Wind: moderate to severe	Low	Well drained	Occasional / none	> 60	No	2.1 to 11.7	-
702	Typic Histoturbels	Outwash plains	10 to 18	Water: slight Wind: slight	High	Poorly drained	None/none	0 to 10	Yes	5.0	-
707	Typic Histoturbels- Typic Dystrocrypts complex, hills	Hills	14 to 24	Water: severe Wind: moderate	High	Poorly to well drained	None/none	0 to > 60	No	6.1 to 8.4	-
Yukon Training Area											
45F	Gilmore silt loam, 30 to 45 percent slopes	Hills	-	Water: severe Wind: severe	High	Well drained	None/none	> 72	No	2.9	Black spruce, paper birch, white spruce, and quaking aspen forest

Table 3-95. Characteristics of Representative Soils Found in the Area of Proposed Intermediate Staging Bases Locations (Continued)

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
49D	Angel silt loam, 12 to 20 percent slopes	Hills	-	Water: severe Wind: severe	Low	Well drained	None/none	> 72	No	3.0	Black spruce, paper birch, white spruce, and quaking aspen forest
49E	Angel silt loam, 20 to 30 percent slopes	Hills	-	Water: severe Wind: severe	Medium	Well drained	None/none	> 72	No	3.0	Black spruce, paper birch, white spruce, and quaking aspen forest
50X	Ester peat, 20 to 45 percent slopes	Hills	7 to 30	Water: severe Wind: slight	Very high	Very poorly drained	None/none	4	Yes	2.1	Black spruce woodland
51C	Saulich peat, 7 to 10 percent slopes	Valley sides	14 to 24	Water: slight Wind: slight	Very high	Very poorly drained	None/frequent	0 to 8	Yes	3.6	Black spruce forest with low shrubs and moss
81V	Saulich and Chatanika soils, 3 to 15 percent slopes	Hills, valley sides	12 to 39	Water: severe Wind: severe	Very high	Poorly to very poorly drained	None/frequent	0 to 8	Yes	3.6 to 4.3	Black spruce forest with low shrubs and moss
81X	Saulich and Chatanika soils, 15 to 20 percent slopes	Hills, valley sides	12 to 39	Water: severe Wind: severe	Very high	Poorly to very poorly drained	None/frequent	0 to 8	Yes	3.6 to 4.3	Black spruce forest with low shrubs and moss

Table 3-95. Characteristics of Representative Soils Found in the Area of Proposed Intermediate Staging Bases Locations (Continued)

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
82V	Gilmore and Steese silt loams, 3 to 15 percent slopes	Hills	-	Water: severe Wind: severe	Medium to high	Well drained	None/none	> 72	No	2.9 to 6.1	Paper birch white spruce, and quaking aspen forest
82X	Gilmore and Steese silt loams, 15 to 45 percent slopes	Hills	-	Water: severe Wind: severe	High	Well drained	None/none	> 72	No	2.9 to 6.1	Paper birch white spruce, and quaking aspen forest
86X	Brigadier and Manchu silt loams, 3 to 45 percent slopes	Hills	-	Water: severe Wind: severe	High to very high	Moderately well to well drained	None/none	7 to > 72	No	3.2 to 6.7	Black spruce, white spruce, balsam poplar and paper birch forest
87V	Gilmore, subalpine and Manchu soils, 0 to 15 percent slopes	Hills	-	Water: moderate to severe Wind: severe	Medium to very high	Well drained	None/none	7 to > 72	No	2.9 to 6.7	Black spruce, paper birch white spruce, and quaking aspen forest
91	Aquic Cryofluvents-Typic Cryaquents-Fluvaquentic Aquorthels complex, 2 to 10 percent slopes	Floodplains	14 to 28	Water: slight to moderate Wind: slight to moderate	Low to very high	Very poorly to moderately well drained	Occasional to frequent/frequent	0 to 51	Yes	5.9 to 13.9	Willow and birch scrub

Table 3-95. Characteristics of Representative Soils Found in the Area of Proposed Intermediate Staging Bases Locations (Continued)

Unit #	Soil name	Location/ Landform	Depth to Permafrost (inches)	Erosion Hazard (organic mat removed)	Runoff	Drainage Class	Flooding/ Ponding	Depth to High Water Table (inches)	Hydric?	Available Water Capacity (inches)	Associated Vegetation
211	Chatanika-Goldstream complex, 0 to 5 percent slopes	Hills, floodplains, valleys	12 to 39	Water: slight Wind: severe	Negligible to very high	Poorly to very poorly drained	None/frequent	0 to 8	Yes	3.6 to 4.3	Black spruce woodland and forest
212	Goldstream-Histels complex, 0 to 3 percent slopes	Floodplains, valleys	14 to 24	Water: slight Wind: slight	Negligible	Very poorly drained	None/frequent	0 to 8	Yes	3.6	Black spruce woodland
411C	Minto-Chatanika complex, 7 to 12 percent slopes	Hills	12 to 39	Water: severe Wind: severe	Medium to very high	Poorly to moderately well drained	None/frequent	0 to 8	Yes	4.3 to 12.6	Black spruce, white spruce, and paper birch forest
411D	Minto-Chatanika complex, 12 to 20 percent slopes	Hills	12 to 39	Water: severe Wind: severe	Medium to very high	Poorly to moderately well drained	None/frequent	0 to 8	Yes	4.3 to 12.6	Black spruce, white spruce, and paper birch forest
451X	Brigadier-Ester complex, 15 to 45 percent slopes	Hills	7 to 30	Water: severe Wind: severe	High to very high	Very poorly drained	None/none	4	No	2.1 to 3.2	Black spruce forest and woodland

Source: USDA 2005, 2006, 2011

Primary impacts associated with the construction of ISB components would be short-term. Potential soil impacts would include the increase of impervious surface and surface runoff, soil erosion, reduced soil strength, the removal of vegetation and soil in the building/construction footprint, and soil compaction in the area of and surrounding construction. Compaction of soil can lead to inhibited vegetation growth and increased surface water runoff. Soil erosion can contribute to increased sedimentation of nearby waterways, resulting in the potential for significant adverse impacts.

Potential impacts on permafrost during and after construction of new facilities would result from removal of upper soil layers or vegetative mat, leading to increased possibility of permafrost degradation and creation of thermokarst features. Structures built on areas with underlying permafrost are subject to differential settling and other damaging effects, if there is not sufficient insulation between the structure and the underlying permafrost. Permafrost is vulnerable to surface disturbance and significant adverse impacts are likely to be long-term and irreversible.

As with soils, extent and location of permafrost beneath the surface at DTA, YTA, and TFTA, respectively, is variable and thus the extent of impacts on permafrost would be dependent upon permafrost conditions under the construction footprints of each ISB. All but one of the possible ISB sites are in areas that range from a worst-case scenario of discontinuous permafrost to a best-case of permafrost free (e.g., areas in proximity to existing roadways or in the Tanana River lowlands). The one exception is the proposed ISB location on YTA; that proposed site may range from continuous to discontinuous permafrost (USACE 1999).

Land on TFTA, YTA, and DTA is located within an area classified by the USGS as moderate to high for earthquake hazard potential. Effects from the 7.9 earthquake in November 2002 were felt on TFTA, YTA, and DTA and structures and infrastructure on TFTA did incur some damage as a result. Potential geologic hazards such as slope instability and seismically-induced ground failure would be addressed through a standard, site-specific, geotechnical investigation before construction begins, in particular for the proposed ISB on YTA, as this location is in an area of varied and often steep topography.

3.10.5.3.1.1 Site Selection Criteria and Best Management Practices

Since the construction of any of the ISBs would result in greater than 1 acre of ground disturbance, USAG-FWA would be required to coordinate with ADEC and may be required to submit a NOI to ADEC at least 7 days prior to the implementation of the project. Construction activities would be undertaken in compliance with a project-specific NPDES General Construction Permit and the implementation of an SWPPP may also be required. Building designs would be consistent with Section 438 of the Energy Independence and Security Act (EISA) as well as Fort Wainwright's SWPPP in order to minimize runoff contamination. In addition, building and infrastructure construction would adhere to all applicable DoD and Army guidelines for protection of soils, prevention of soil erosion, and prevention of permafrost degradation. See Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, for information on how the Army manages natural resources on Army lands in Alaska and ongoing measures that would apply to the proposed action.

Pre-planning for siting of new infrastructure or new activities at ranges or on training areas requires coordination with the USARAK IRO. The USARAK IRO and USAG-FWA Environmental Division review the range user's proposal and work directly with the (Air Force/proponent/user) to select a location suitable for the proposed purpose, while also considering a range of environmental, operations, and land use constraints. These considerations, as well as information from the ITAM program would factor into site selection and specific restrictions or BMPs that the proponent must agree to follow. This includes periodic or post-activity assessments, restorative actions, and site clean-up.

Any new facility construction would be undertaken in compliance with guidelines established in EO12699, *Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction*. In addition, any new construction, including facilities and infrastructure, would adhere to guidelines established by DoD and Army (or DOT/AAHSTO national standards) for earthquake resistance. USAG-FWA would also ensure new facilities are not constructed on or in proximity to active seismic faults and, if necessary, would consult with the USGS in regard to ISB location and distance to active faults.

3.10.5.3.2 No Action

Under the No Action Alternative, existing “relocatable” ISB facilities would continue to be used. With respect to construction related impacts, soil, permafrost, and seismic related impacts would be similar to the proposed action, but only after seven years of operations. Impacts would be substantially less during the first 7 years of operations, due to the lack of new construction. As a result, conditions would remain as described in Section [3.10.5.1](#).

3.10.5.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.10.5.3.1](#).

3.10.6 Water Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6.

3.10.6.1 Affected Environment

Four ISBs would be located within the existing JPARC training grounds at key points on the planned rail corridor and planned bridge crossings. One ISB would likely be near the Northern Rail extension bridge crossing of the Tanana River, on the west side of the river. This area is an abandoned floodplain of the Tanana River dissected by ribbons of palustrine shrub-scrub wetlands. The area is 10 to 20 feet (3.1 to 6.1 meters) in elevation above the active Tanana River channel. Based on nearby surface water and groundwater quality measurements, surface and groundwater likely meet primary State water quality standards. Wetland coverage in the potential location for the ISB ranges from 25 to 100 percent.

One ISB would be potentially located near the southwest edge of the Stuart Creek Impact Area in the Tanana-Yukon Uplands. This location is near the headwaters of Stuart Creek and French Creek. Groundwater availability is limited in the hills and the uplands where the ISB may be located. Though there are no groundwater monitoring wells in the area, groundwater in nearby wells at Fort Wainwright have high concentrations of metals. Iron concentrations exceed secondary water quality standards, and some wells in the uplands also have higher concentrations of arsenic from naturally occurring sources. High concentrations of iron are common in areas that drain wetland-rich areas. In this area the wetlands are located primarily in the valleys of Stuart and French Creeks. Wetland coverage in this location is approximately 16 percent.

One ISB would potentially be located on the northwest of edge of DTA near the confluence of the Little Delta River and the Tanana River. Surface water quality values on DTA meet the State’s primary drinking water standards. However, naturally occurring aluminum, iron, and manganese concentrations are higher than the State’s secondary standards. High concentrations of iron are common in areas that drain wetland-rich areas. Groundwater is available in the floodplain alluvium of either the Tanana or Little Delta River. Based on available groundwater data, groundwater quality in DTA is within State standards. Information on the extent of the 100-year floodplain is unavailable. However, hills in the area

are over 700 feet (213 meters) above the active channels, and the ISB can be outside the floodplain. Wetlands are primarily located in the low-lying areas of the Tanana and Little Delta Rivers. Wetland coverage for potential sites in this location ranges from 3 to 24 percent.

One ISB would potentially be near Highway 4 in DTA between the Delta River and Jarvis Creek. Delta River and Jarvis Creek are glacier-fed streams. Surface water quality values on DTA meet the State's primary drinking water standards. However, naturally occurring aluminum, iron, and manganese concentrations are higher than the State's secondary standards (USARAK 2004-1). High concentrations of iron are common in areas that drain wetland-rich areas. Large quantities of groundwater are available in the floodplain deposits of the Delta River and Jarvis Creek. Nearby at Fort Greeley, the water supply comes from a single well in Mainside near the Delta River. The 100-year floodplain of Jarvis Creek was mapped in 2006 (USARAK 2008-2). There are numerous small ponds and scattered wetlands throughout the area. Wetland coverage for potential sites in this location ranges from 3 to 24 percent.

3.10.6.2 Impact Assessment Methodology

The general methodology for evaluating water resources is described in Section [3.2.6.2](#).

3.10.6.3 Environmental Consequences

3.10.6.3.1 Proposed Action

The proposed action would include construction and use of four ISBs. Each ISB would include permanent barracks, large parking areas for storage of truck and vehicular equipment, dining facilities, ammunition storage points, petroleum-oil, lubricant area, and maintenance facilities. Each ISB would cover approximately 110 acres (45 hectares).

The proposed action could impact surface water quality and quantity due to sedimentation resulting from altered runoff and overland flow patterns during construction. USAG-FWA currently has an approved SWPPP (USARAK 2006-2). The SWPPP sets the framework for which all construction projects must follow in terms of storm water management. Construction of the ISB would adhere to the USAG-FWA SWPPP limiting impacts of sedimentation to surface water quality. On-going use of the ISBs could potentially degrade surface and groundwater quality through the inadvertent release of petro-chemicals. The USAG-FWA implements hazardous materials management programs to ensure compliance and provide guidance on handling and disposing of such materials. These include stringent discharge, storage, and pollution prevention measures and require facility managers to reduce, to the extent possible, quantities of toxic substances released into the environment. All facilities would have comprehensive programs in place that implement responsible stewardship, hazardous materials management and minimization, pollution prevention, recycling, and spill prevention and response. Due to the adherence to the SWPPP during construction and adherence to hazardous material management programs after construction, the potential adverse impacts on surface water quality would be reduced to not significant.

The additional impervious surface of the buildings and parking lots of the ISB would increase surface water runoff and decrease groundwater recharge. Due to the abundance of groundwater and the overall size of the alluvial deposits and recharge areas compared to the ISB footprint, the impacts of the construction of ISBs on groundwater quantity would be potentially adverse but not significant.

The ISB study locations near the Tanana River and near Jarvis Creek and Delta River may encroach upon the 100-year floodplain. Building an ISB within the 100-year floodplain could put lives and military property at risk. Prior to selecting the sites for the ISBs, the 100-year floodplain of any creeks or rivers near the proposed locations of ISBs should delineated. The ISB should be placed outside of the 100-year

floodplain to reduce risks of flooding. If a proposed ISB is potentially within a 100-year floodplain, measures outlined in EO 11988, *Floodplain Management* should be followed.

The wetland coverage of the proposed study locations for the ISBs ranges from 3 to 100 percent. Where feasible, the construction footprint of the ISB should be located to minimize impacts on wetlands and critical habitat. Prior to selecting the site of the ISB, the wetlands within the proposed study location should be delineated.

If the proposed action area is within a wetland area as confirmed by the existing wetland inventories and site visit, Environmental Resources Division staff would request a Jurisdictional Determination by the USACE. The USACE may conduct a site visit and complete a wetland delineation or require one be conducted by USAG-FWA. The USACE would recommend the type of wetland permit application to submit. As a condition for receiving these permits, USAG-FWA would comply with all permitting conditions designed to mitigate impacts on wetlands. Without detailed wetland surveys of the proposed ISBs, it is not possible to determine the significance of the potential adverse impacts by the proposed action on wetlands.

Recommended Measures to Reduce Impacts:

Water Quality

- Adhere to the SWPPP during construction (USARAK 2006-2).
- Ensure the ISB facilities have hazard material management programs that implements responsible stewardship, hazardous materials management and minimization, pollution prevention, recycling, and spill prevention and response.
- Control sediment transport through utilization of BMPs for erosion and sediment control which could include but is not limited silt fencing, straw wattles, and stormwater retention/detention basins during construction.
- Keep all construction staging, fueling, and servicing operations at a minimum of 100 feet from surface waters.
- Employ SPPCP measures to prevent spills and effectively address cleanup strategies before potential spill contaminants could reach water resources.
- Stabilize all disturbed areas resulting from project construction using native vegetation to minimize erosion and subsequent sedimentation of wetlands and streams.

Floodplains

- If a proposed ISB is potentially within a 100-year floodplain, measures outlined in EO 11988, *Floodplain Management* should be followed.

Wetlands

- Site the ISBs to avoid construction in wetlands as much as practicable.
- Complete detailed wetland delineations prior to the final designs of the ISBs. After wetland delineations have been completed the designs should be modified based on the delineations to avoid impacting wetlands as much as possible.
- Where possible, conduct vegetation-clearing activities during the winter months when soils are frozen.
- Use of a hydro-ax within wetlands to reduce impacts on hydric soils and low-lying vegetation.

- Fill areas would be minimized for wetlands through site-specific design and limiting construction staging to upland areas.
- Maintain natural drainage patterns by the installation of culverts of adequate number and size to prevent flooding or excessive drainage of adjacent wetlands.
- No stockpiling of fill or construction materials in wetlands or waters of the United States without obtaining necessary permits. All equipment operation would be confined to the project footprint to prevent unnecessary damage to adjacent wetlands and vegetation.
- Conduct all additional avoidance, mitigation and compensation as required by terms and conditions in the USACE Section 404 permit.

3.10.6.3.2 No Action

Under the No Action Alternative, existing “relocatable” ISB facilities would continue to be used. Therefore impacts on water quality, floodplains, and wetlands would be the same as existing condition.

3.10.6.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.10.6.3.1](#).

3.10.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.10.7.1 Affected Environment

The ROI for the ISBs proposed action is land within and just outside YTA, TFTA, DTA, and the Fort Greely area. Generally, the ISBs are near but outside the related training areas. In addition to the training areas, the ROI includes lands along a 2-mile-wide corridor between TFTA and DTA (under the Delta 2 MOA/Birch MOA). DTA is a 623,585-acre training area in the Tanana River valley. YTA is a 249,552-acre training area just east of Fairbanks. TFTA is a 653,746-acre training area south of Fairbanks. Fort Greely is a 6,805-acre installation east of DTA in the east-central portion of Alaska.

MUNITIONS-RELATED RESIDUE

This proposed action does not include the use of live-fire training exercises.

CONTAMINATED SITES

There are no CERCLA Superfund sites listed on the National Priorities List in DTA, YTA, TFTA, or Fort Greely in the ROI for the ISBs. There are no sites listed on the ADEC CSP database in the ISB ROI within YTA. The ADEC CSP database lists a single site, CSP 1642, just outside TFTA in the ISB ROI ([Table 3-96](#)). The CSP database lists seven sites within Fort Greely in the ISB ROI: CSP Sites 1730, 1738, 2528, 2681, 3113, 4293, and 25634 ([Table 3-96](#)).

The Army Environmental Restoration database lists a single restoration site under the ISB ROI. This site is identified as FTWW-008-R-01, Bombing Area Between Fort Wainwright and DTA (USAEC 2010).

3.10.7.2 Impact Assessment Methodology

The general methodology for evaluating hazardous materials and waste is described in Section [3.1.7.2](#).

Table 3-96. Contaminated Sites in Intermediate Staging Bases Region of Influence

CSP Site #	Site Name	Description	Site Status	Training Area
1642	AHFC Properties, Salcha	Soil and groundwater contamination from heating oil pipeline diesel	Cleanup Complete	Near TFTA
1730	Alyeska PS 09 Turbine Fuel Spill	Contaminated soil from 180-gallon turbine fuel spill	Open	Fort Greely
1738	Alyeska PS 09 Fuel Handling Area	Petroleum- contaminated soil in pipeline fuel-handling area	Open	Fort Greely
2528	Alyeska PS 09 Fuel Island	Pump station diesel soil contamination	Cleanup Complete	Fort Greely
2681	Alyeska PS 09 Former Mainline Turbine Sump	Pipeline sump petroleum–contaminated soil and groundwater	Open	Fort Greely
3113	Alyeska PS 09 Therminol Release	Therminol-contaminated soil from pipeline boot liner repair	Open	Fort Greely
4293	Alyeska PS 09 Mainline Historical Contamination	Petroleum contamination of soil discovered during construction	Cleanup Complete- Institutional Controls	Fort Greely
25634	Alyeska PS 09 Tank 190	Pipeline crude oil contamination	Open	Fort Greely

Key: ISB=Intermediate Staging Base; ROI=region of influence; TFTA=Tanana Flats Training Area.

3.10.7.3 Environmental Consequences

3.10.7.3.1 Proposed Action

GENERAL HAZARDOUS MATERIALS AND WASTE

The proposed action consists of the establishment of ISBs to house, maintain, and stage forces before insertion into the combat training area. There are eight ADEC CSP sites in the ISB ROI. The project proponents would utilize the range Institutional Control map to avoid these CSP locations when siting project components. If sites could not be avoided, established BMPs/SOPs would be followed. Impacts associated with potentially contaminated soils and spills of POLs would be similar to those described for the Enhanced Ground Maneuver proposal. Existing mitigations described in Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, would be applied to the proposed action. No beneficial or adverse hazardous materials related impacts would occur in association with this proposed action.

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

No hazardous materials impacts would occur in association with munitions use, as training and operations would not include live fire.

3.10.7.3.2 No Action

Under the No Action Alternative, the existing “relocatable” ISB facilities would continue to be used and hazardous materials would continue to be managed in accordance with Army, State, and Federal regulations. Therefore, no beneficial or adverse hazardous material related impacts would occur.

3.10.7.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.10.7.3.1](#).

3.10.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.10.8.1 Affected Environment

As for the other programmatic projects, study areas for the proposed ISB project are large and based upon entire training areas. The biological resources that likely occur in the proposed project study locations are described in detail in Section [3.3.8](#) (DTA), Section [3.8.8](#) (TFTA), and Section [3.7.8](#) (DTA, YTA, and TFTA).

Major vegetation types that occur within the ISB study locations are presented in [Table 3-98](#) (next page).

Important known habitats for wildlife species that occur within the ISB study locations are presented in [Table 3-97](#).

Table 3-97. Wildlife Habitats Associated with the Intermediate Staging Bases Project

Study Area	Moose Winter Habitat	Moose Rutting/Calving Habitat	Caribou Winter Habitat	Caribou Calving Habitat	Waterfowl General Habitat	Dall Sheep Winter Habitat
	Acres (hectares)					
DTA	523,601 (211,894)	361,113 (146,137)	509,351 (206,127)	404,398 (163,654)	284,015 (114,937)	11,155 (4,514)
YTA	82,366 (33,332)	82,366 (33,332)	20,325 (8,225)	0	14,424 (5,837)	0
TFTA	666,393 (269,680)	666,393 (269,680)	132,270 (53,528)	0	578,275 (234,019)	0

Key: DTA=Donnelly Training Area; ISB=Intermediate Staging Base; TFTA=Tanana Flats Training Area; YTA=Yukon Training Area.

Source: RDI 2005-1, 2005-2, 2005-3, 2005-4, 2005-5, 2005-6.

Table 3-98. Land Types Associated with the Intermediate Staging Bases Project

Study Area	Spruce and Broadleaf Forest	Open and Closed Spruce Forest	Spruce Woodland/ Shrub	Open Spruce and Closed Mixed Forest Mosaic	Open Spruce Forest/ Shrub/Bog Mosaic	Closed Mixed Forest	Closed Spruce Forest	Gravel Bars	Alpine Tundra and Barrens	Dwarf Shrub Tundra	Tall and Low Shrub	Tall Shrub	Glaciers and Snow
	Acres (hectares)												
DTA	62,837 (25,429)	220,914 (89,401)	56,645 (22,923)	18,179 (7,357)	163,022 (65,973)	0	0	50,284 (20,349)	4,188 (1,695)	6,172 (2,498)	43,026 (17,412)	5,770 (2,335)	247 (100)
YTA	142,364 (57,613)	27,971 (11,319)	16,680 (6,750)	548 (222)	36,710 (14,856)	0	1,481 (600)	0	0	0	3,889 (1,574)	27,640 (11,186)	0
TFTA	145,802 (59,004)	97,028 (39,265)	3,284 (1,329)	19,335 (7,824)	379,859 (153,723)	4,498 (1,820)	0	11,555 (4,676)	0	53 (22)	66 27	5,679 (2,298)	0

Key: DTA=Donnelly Training Area; ISB=Intermediate Staging Base; TFTA=Tanana Flats Training Area; YTA=Yukon Training Area.

Source: USGS 1991.

3.10.8.2 Impact Assessment Methodology

The general methodology for evaluating biological resources is described in Section [3.1.8.2](#).

3.10.8.3 Environmental Consequences

3.10.8.3.1 Proposed Action

The programmatic analysis for the ISB project would be very similar to those analyses provided above for the other ground-disturbing projects including EGMS, TFTA Road Access, and JAGIC. The proposed action would include construction of barracks and support facilities for four ISBs, each approximately 110 acres in size. Each ISB may include an airfield for staging forces and would support 500 to 1,000 Soldiers and associated vehicular equipment, fueling and maintenance facilities.

Actions that may include ground-disturbance and consequently, vegetation clearing within the proposed study locations (DTA, YTA, and TFTA) can result in vegetation and wildlife habitat losses and fragmentation. Construction activities can also cause animal mortality, especially for smaller, young, and less mobile species.

To reduce adverse effects, recommended siting criteria include minimizing construction in the following known sensitive habitats (different avoidance seasons apply; see the biological resources mitigations table in Appendix G, *Biological Resources*, and Figures B-11, B-13 and B-14 in Appendix B):

- Bogs and other wet habitats
- Moose calving, rut and winter habitats
- Caribou calving, rut, and winter habitats and migration routes
- Dall sheep winter habitat and migration routes
- Waterfowl general, migration stopover/resting, and nesting areas
- Swan habitats
- Brown bear seasonal habitat and fish streams
- Sensitive bison habitat
- Fish spawning and rearing habitat
- Raptor, especially eagle, nesting areas

Direct impacts from new road and utility corridor as well as construction of larger facilities displaces habitat, can fragment larger habitats and migration routes, and may hinder or preclude access to important habitat for some species. Indirect impacts that include allowing additional human access into areas or during seasons where it has not occurred in the past can be especially disruptive to wildlife during sensitive life stages such as breeding, nesting, and calving/lambing. In conjunction with the Army's siting and environmental review process, coordination with ADFG and USFWS personnel would occur to site component alignments to minimize damage and disturbance to biological resources. The biological resources mitigations table in Appendix G, *Biological Resources*, includes established and proposed mitigation measures that, when applied, reduce impacts on wildlife during important seasonal activities. Temporary impacts include the clearing or trampling of construction use areas and the addition of construction noise, dust, trash, weed spread, and other hazards such as potential spills. Standard BMPs and SOPs also apply to reducing these types of effects (Appendix G). Other potential long- and short-term effects from construction would be mitigated by institutional programs that include planning,

monitoring, rehabilitation, and management of ecological conditions. Because the locations and specifics of construction at each training area and the biological resources that would be affected by the project are not presently known, uncertainties about biological impacts exist for this programmatic project. However, due to the large amounts of land disturbance required for site development and the introduction of human and vehicle all-season access into the area, the potential for significant adverse impacts from ISB construction and implementation exists.

3.10.8.3.2 No Action

The current amount of localized ground disturbance (from training, vehicles and live fire) would be expected to continue and wildlife using the area would be expected to remain active in occupied habitats.

3.10.8.4 Considerations for Future Planning

In addition to siting criteria and vegetation clearing guidelines listed in Section [3.7.8.3](#), other measures, BMPs, and SOPs that should be applied to ground-disturbing activities are included in Appendix G, *Biological Resources*.

3.10.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.10.9.1 Affected Environment

The ROI for the ISB proposed action is land within and just outside YTA, TFTA, DTA, and the Fort Greely area. The DTA and TFTA portions of the ISB affected environment are the same as described in Section [3.2.9.1](#), Realistic Live Ordnance Delivery. The YTA portion of the ISB affected environment is the same as described in Section [3.4.9.1](#), Expand Restricted Area R-2205. The Birch MOA portion of the ISB affected environment is the same as described in Section [3.6.9.1](#), UAV Access.

3.10.9.2 Impact Assessment Methodology

The methodology used for the analysis of potential impacts on cultural resources for the proposed ISB action is the same as the methodology applied to the analysis of the EGMS action (Section [3.8.9.2](#)).

3.10.9.3 Environmental Consequences

3.10.9.3.1 Proposed Action

This Action would create four ISBs (one ISB supporting 1,000 Soldiers and three supporting 500 Soldiers) within existing JPARC ground training areas.

There is the potential for impacts on cultural resources from the construction of the ISBs in DTA, YTA, and TFTA. Prior to implementation of any element of this proposed action, the Army would comply with NHPA, Section 106 including identification of historic properties, and assessment and resolution of adverse effects through consultation with Alaska SHPO.

There is the potential for impacts on traditional cultural resources or Alaska Native activities from the construction of the ISBs in DTA, YTA, and TFTA. Although no traditional cultural properties have been specifically identified in the ROI, this does not mean that none are present. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has initiated government-to-government consultation with potentially affected Federally

recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources or Indian land under the proposed construction of the ISBs in DTA, YTA, and TFTA (see Section [1.6.5](#)). Consultation will continue as the proposal progresses toward a definitive action.

3.10.9.3.2 No Action

Under the No Action Alternative there would be no construction of the ISBs in DTA, YTA, and TFTA. Existing use of the ranges and airspace would continue under this alternative and resources would continue to be managed in compliance with Federal law and Army regulations.

3.10.9.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.10.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.10.10.1 Affected Environment

LAND STATUS, MANAGEMENT AND USE

Land Status

ISBs would be located on existing Army-managed land. Locations for four ISBs shown in [Figure 2-14](#) are preliminary and represent operationally suitable sites, but could be adjusted to limit environmental effects, reduce real estate conflicts and improve operational efficiency. [Figure 3-41](#) shows the land status and uses of surrounding military and non-military land in relations to these conceptual sites. For the purpose of analysis, the proposal area includes land surrounding the illustrated sites.

Land Management and Use

The proposal includes four potential sites. Preliminary sites are located on or adjacent to military land on TFTA, DTA-West, DTA-East/Fort Greely and/or YTA. These areas are managed and planned according to current INRMPs, with supporting direction from the RTLP and RDP. Further description of military uses on these areas is provided in Section [3.2.10.1](#) (DTA-West and TFTA), Section [3.3.10.1](#) (for DTA-East), and Section [3.4.10.1](#) (for YTA).

Potential sites (on TFTA and DTA-West) are located on Army land between Fort Wainwright and Fort Greely. The surrounding land is predominantly State-owned, with interspersed small communities and land that is classified for habitat and recreational use. ADNR is the primary land resource manager of State lands in the potentially affected area. ADNR is currently developing the ETAP that will guide management of State land in this area. This area is the primary travel corridor in the region. Land in this corridor could have potential for future settlement and development. The proposal area also includes lands within the FNSB, with the Regional Comprehensive Plan and the FNSB JLUS providing a framework for future development and compatible uses.

The legislatively designated Tanana Valley State Forest has several parcels interspersed along the Tanana River corridor between Fairbanks and Delta Junction, as shown in [Figure 3-41](#).

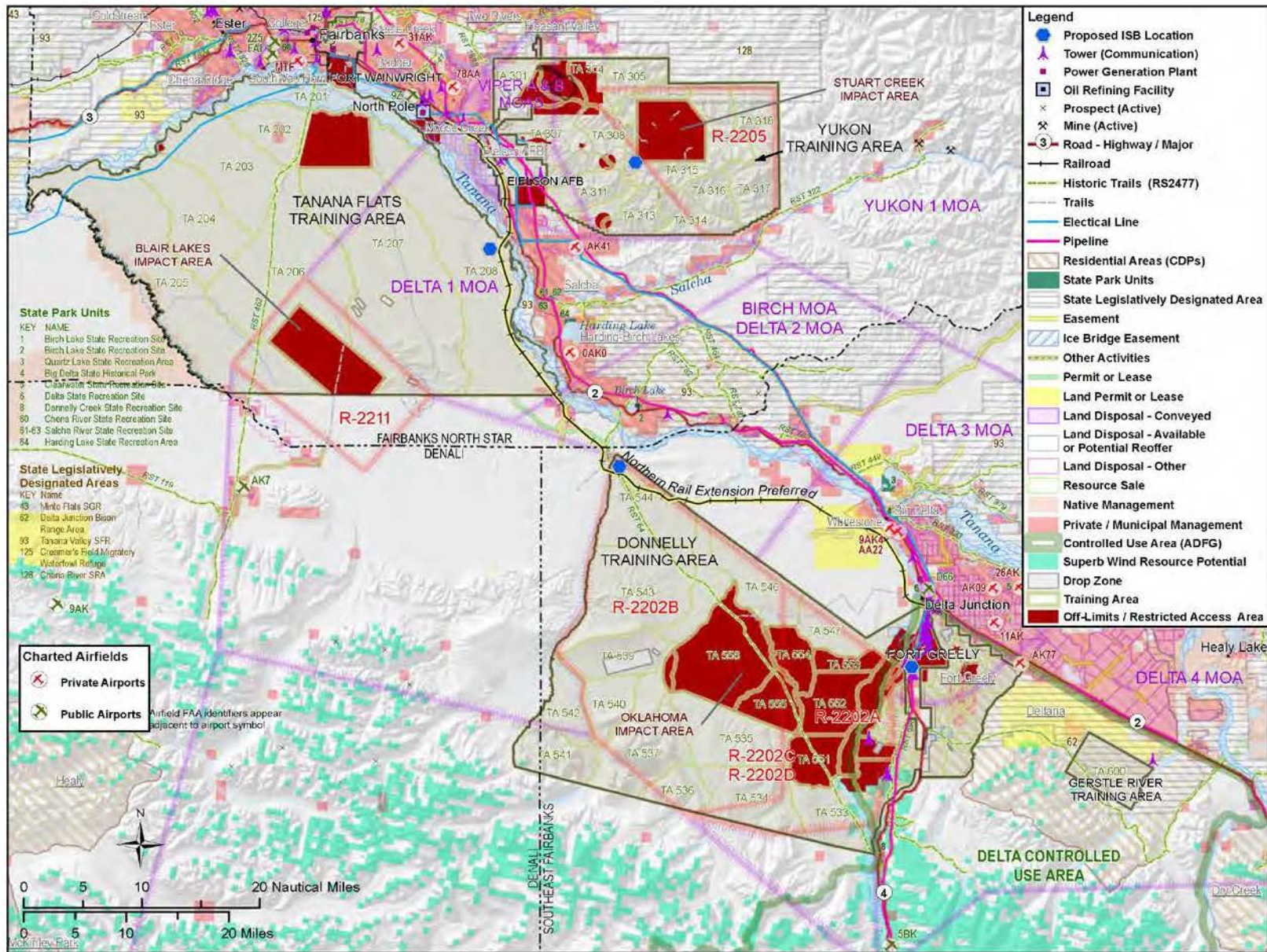


Figure 3-41. Military Uses, Special Use Areas, General Land Status and Productive Uses – Intermediate Staging Bases Proposal Area

Source: ADNR 2009-1, ADNR 2009-2, ADNR 2009-3, ADNR 2009-4, ADNR 2011-2, ADNR 2011-3, ADNR 2011-4, ADNR 2011-7, AWS TrueWind/NREL 2003, FNSB 2006, NGA no date, SAIC 2011-1, SAIC 2011-3, USCB 2010-1, USGS 2005-1, USGS 2005-2

Resource and Productive Use

Based on the preliminary study area for the ISB proposal, the affected real estate includes primarily forested land, 690 acres of land classified for recreational values, about 3,300 acres classified for habitat value. Surrounding State land may have valid existing rights-of-way and active mineral estate claims and orders. One of the proposed sites intersects with a small segment of utility easement. One site is located close to a designated trail (Donnelly-Washburn). Two sites (on YTA and Fort Greely/DTA-East) are located within or close to areas with continuous access restrictions because of hazardous military activities.

PRIVATE AND NATIVE LANDS

There is no private land directly within the preliminary proposal study area.

LOCATIONS OF INTEREST

The proposed site for an ISB on TFTA is close to the newly approved alignment for the Alaska Northern Rail Extension and bridge crossing near Salcha.

PUBLIC ACCESS

Land Access

Access and use to military lands under consideration for the ISB proposal are described above in Sections [3.2.10.1](#), [3.3.10.1](#), and [3.4.10.1](#). There are several trails, including RS 2477 designated routes, within the study area for this proposal include the Donnelly-Washburn trail (RS 2477-RST 64).

Aerial Access

Public aerial access to DTA, TFTA, DTA-East/Fort Greely, and YTA is described in Sections [3.2.10.1](#), [3.3.10.1](#), and [3.4.10.1](#).

Navigable and Public Waters

The portion of the Tanana River in the proposal area is considered navigable.

RECREATION

State land surrounding the proposed ISB sites at TFTA and DTA and Fort Greely support recreational uses, particularly hunting, fishing, trapping and a variety of sporting activities. Several State recreational areas and parks are located in the corridor between Fairbanks and Delta Junction. Appendix I, *Land Use, Public Access, and Recreation* provides descriptions of those in the ISB proposal area. Information on recreation in the ISB proposal area is described in Sections [3.2.10.1](#), [3.3.10.1](#), and [3.4.10.1](#), and [3.6.10.1](#).

3.10.10.2 Impact Assessment Methodology

General methodology pertaining to evaluating land use, public access and recreation are described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The method for assessing impacts for this programmatic proposal is similar to that described in Section [3.8.10.2](#). This assessment is based on the following assumptions:

- Some level of industrial type activity would occur on-site for vehicle maintenance and operating a remote site for a large concentrated number of people.

- Each site would not support hazardous training activities such as weapons training or munitions storage.
- Fuels and other lubricants would be used and stored on site to service the vehicles that stage from the ISB.
- Each site would occupy up 110 acres (preliminary estimate), with facilities concentrated on about 10 to 15 percent of the land.
- Each ISB would require an access road of varying lengths. Access roads could pass over non-military roads and require acquiring a real estate interest such as a right-of-way or easement from the surface landowners.

3.10.10.3 Environmental Consequences

3.10.10.3.1 Proposed Action

The primary sources of impact on land use, including public access and recreation, from this proposal would result from construction activities, use of new facilities (either permanent or temporary) for housing up to 1,000 Soldiers, and use of facilities to maintain and support vehicles and equipment for field training. Impacts could result from land acquisition or lease of property from another entity and resulting displacement of current uses and ownership interests. Noise, traffic, scale and visibility of facilities, and activity associated with construction and subsequent use of a remote built-up area may be incompatible with surrounding areas based on their use and inherent resource values. The following siting pre-planning process and siting criteria are recommended to reduce potential impacts.

- Develop and apply a comprehensive set of siting and operational criteria to refine the optional sites. Initially identify operationally suitable areas. Within these areas, identify all potentially sensitive assets or resources, protected or unavailable land (for example, areas with UXO, non-military ownership, noise sensitive, developed site) using GIS overlays. Prioritize preferred sites for preliminary review with local jurisdictions and regulatory agencies. Preliminary agencies to include are ADNR, USACE, USFWS, ADFG, local borough, Native village, or community planners. Internally, review selected sites with USAG-FWA planners and resource asset managers.
- During the siting process, look for opportunities to maximize the use of existing infrastructure or to augment locations that would benefit from improvements (such as shared use of access road or energy upgrades) for both military and non-military purposes.
- Coordinate with local jurisdictions and regulatory agencies early in the siting process to review siting criteria and to share updated information on related to siting criteria. If a site requires access over or development on non-military land, use the coordination process to obtain detailed and up-to-date information on land status and subsurface ownership, encumbrance and interests in the lands held by other parties (including minerals and energy resources), existing rights-of-way, easements, leases, permits. To the extent possible, avoid land with any conflicting interests. Discuss options and mechanisms for acquiring access easements with landowners/managers.
- To minimize the amount of construction required, prioritize sites based on distance from paved and maintained road network, utilities and power grid. Alternatively, consider concepts of site self-sustainability that incorporate energy and water saving strategies.
- Avoid sites requiring land in or near special use areas (such as Tanana Valley State Forest), communities or homesteads, important wildlife habitat, areas used for wildlife calving, rutting, or migration, popular recreational and hunting areas (including cabins and shelters), wetlands and waterways, and soils characterized as unconstructable.

- To the extent possible, incorporate buffers or distance from sensitive locations, particularly or sites that are on or near non-military land. Evaluate whether design features can solve any concerns regarding visibility (for example, through facility placement or screening, or directional night lighting), erosion control, noise migration, traffic. Identify proposed solutions in the project description.
- Avoid sites that would intersect and disrupt access to rivers (and low-water river crossings) or existing roads and trails that provide access for property owners or permitted public uses on public land.
- During the operational phase, consider and provide measures to maintain public access. If ISBs would operate discontinuously, consider how training schedules could accommodate public access during the most important hunting, fishing and recreational use periods.
- Consider how new ISBs could provide joint benefits as satellite sites for emergency services or land management staging, and for other remote land users.
- New road alignments and facilities should avoid displacing existing trails that currently provide access for public recreational use. Proposals could include replacement trails if necessary, or allow joint-use of enhancement infrastructure for non-military access when it does not interfere with the military mission.
- Construction of new facilities and infrastructure may extend over multiple seasons. Where construction overlaps spatially with locations that have natural resource value or recreational and public use value, timing restrictions may be warranted. Construction activities (e.g., those producing noise and traffic) should avoid times that are sensitive for particular resources to the extent feasible.

3.10.10.3.2 No Action

Under the No Action Alternative, construction and use of ISBs would not occur. Operations would continue using current facilities and at the same level of use. No impact would result on land use, public access or recreation.

3.10.10.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.10.10.3.1](#).

3.10.11 Infrastructure and Transportation

Reference Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11, for additional regional infrastructure and transportation data.

3.10.11.1 Affected Environment

INFRASTRUCTURE

Electrical Transmission

Electricity in the area is provided by GVEA and Doyon Utilities (ADCCED 2011; Doyon 2011-1). Aurora Energy serves as a subcontractor for the operation of electric power and heat utilities and power generation assets. The contract includes three remotes sites: Black Rapids, Bolio Lakes, and YTA

(Doyon 2011-1). Approximately 1.59 miles of electric power transmission lines cross the ISB rail areas. In addition, 1.71 miles of telephone transmission lines cross the ISB rail areas.

YTA is supplied with power from GVEA and by the Eielson AFB power plant (GVEA 2011). Electric power distribution lines extend northeast into and around the Chena River Research Site and along primary roads within the training area. Overhead power is not available; constant-run generators are used for power generation.

Electric power distribution within DTA is limited to the area east of the Delta River. Even within that area, however, not all range facilities have electric power. DTA falls within the GVEA service area (GVEA 2011).

Currently no commercial power is available in TFTA. GVEA's Northern Intertie is routed along the northwestern and northern sections of TFTA.

Water Supply and Wastewater Treatment

This section presents the proposed actions specific to water supply and wastewater infrastructure and analyzes the potential impacts associated with the ISB proposed action. Water in the region is derived from a well and is treated. Regulations covering water appropriation are contained in the AAC at 11 AAC 93.010-970. Neither the Alaska Constitution nor the Water Use Act differentiate between surface and groundwater uses.

Natural Gas and Oil Pipelines

Within the proposed ISB action areas, 1.63 miles of natural gas pipelines lie within the ISB Fort Greely areas; and 1.47 miles of natural gas pipelines are located within the Tanana Flats rail area.

TRANSPORTATION

Roads, Bridges and Trails

No bridges lie within the ISB proposed action area. Approximately 13 miles of roadway is present within the ISB project area boundaries. These roads fall primarily off DoD facilities; however, slightly over 1 mile of road is within DTA. Individual roads and their distances and names (where available) are presented in [Table 3-99](#).

Under the Alaska Statewide Transportation Plan (ADOT&PF 2008), strategic goals for the transportation network have been set. Among these are to complete modernization of the National Highway System to current standards to address safety and connectivity. These selected routes carry most of the state's truck-based freight and much of its tourist traffic.

Some key sections originally built in the 1940s and 1950s have not been significantly improved since, and these are to be updated. Among these key remaining sections are segments of the Richardson Highway between Delta Junction and Gakona Junction (ADOT&PF 2008).

Approximately 8 miles of trails are present within the ISB proposed action area boundaries. These trails fall within YTA, within DTA, or outside current DoD facility boundaries. Individual trails and their distances and names (where available) are presented in [Table 3-100](#).

Rail

No rail lines or associated railroad infrastructure intersects with the proposed action area.

Table 3-99. Roads in Intermediate Staging Bases Areas

Project Area	Miles	On Facility	Name
ISB Greely	0.79	N/A	Richardson Hwy (SR4)
ISB Greely	0.22	N/A	T A P S Pump Station 9 Access Rd
ISB Greely	1.11	Donnelly Training Area	Richardson Hwy (SR4)
ISB Tanana	0.58	N/A	Richardson Hwy (SR2)
ISB Tanana	0.73	N/A	N/A
ISB Tanana	0.16	N/A	Armitage Ave
ISB Tanana	0.20	N/A	Bradbury Dr
ISB Tanana	0.15	N/A	Crazy H Ln
ISB Tanana	0.19	N/A	Eric St
ISB Tanana	0.14	N/A	Grieme Rd
ISB Tanana	0.32	N/A	Howell Rd
ISB Tanana	1.82	N/A	Old Richardson Hwy
ISB Tanana	0.04	N/A	Powell Dr
ISB Tanana	0.26	N/A	Youngberg Rd
ISB Tanana	0.42	N/A	N/A
ISB Tanana	1.44	N/A	Richardson Hwy (SR2)
ISB Tanana	1.29	N/A	N/A
ISB Tanana	0.30	N/A	Bradbury Dr
ISB Tanana	0.16	N/A	Cleveland Rd
ISB Tanana	0.23	N/A	Maggie Ct
ISB Tanana	0.35	N/A	Markgraf St
ISB Tanana	0.10	N/A	Mema St
ISB Tanana	0.98	N/A	Old Richardson Hwy
ISB Tanana	0.14	N/A	Paula Ct
ISB Tanana	0.16	N/A	Pit Run Rd
ISB Tanana	0.10	N/A	Ruger Trl
ISB Tanana	0.13	N/A	Tenderfoot Ct
ISB Tanana	0.32	N/A	N/A

Key: Ave=Avenue; Ct=Court; Dr=Drive; Ln=Lane; HWY=Highway; ISB=Intermediate Staging Base; N/A=not applicable; Rd=Road.

Table 3-100. Trails in Intermediate Staging Bases Areas

Project Area	Miles	On Facility	Name
ISB D	1.50	Donnelly Training Area	Winter Trail
ISB RAIL D	0.55	N/A	N/A
ISB RAIL D	4.33	N/A	Winter Trail
ISB RAIL D	1.11	Donnelly Training Area	Winter Trail
ISB Y	0.23	Yukon Training Area	N/A

Key: ISB=Intermediate Staging Base; N/A=not applicable.

3.10.11.2 Impact Assessment Methodology

The general methodology for evaluating infrastructure and transportation is described in Section [3.2.11.2](#).

3.10.11.3 Environmental Consequences

3.10.11.3.1 Proposed Action

The proposed action would include construction and use of the ISBs. Components to be built would include permanent barracks, large parking areas for storage of truck and vehicular equipment, dining facilities, ammunition storage points, POL area, and maintenance facilities. Criteria for siting include location of the ISB near existing transportation systems, location near key range roads and access points into training areas, collocation of the ISB near the planned bridge crossings, and rail access.

Extensive roads and trails currently exist in this area to support proposed action, including approximately 1 mile of roadway within DTA and 8 miles of trails throughout TFTA, DTA, YTA, and Fort Greely ISB areas. Extensive rail access is planned for these areas with new rail lines included in the Access to Joint Tanana Military Training Complex and the Denali Park Passenger Train Turnaround Track. The Northern Rail Extension project would construct a new line between North Pole and Big Delta (ADOT&PF 2010-1). This infrastructure would provide rail accessibility to each ISB area.

The Richardson Highway runs through this project area and provides a north-south connection between Fairbanks and Valdez. The Richardson Highway intersects with five other highways and provides regional road access. Year 2030 traffic volumes are forecast along most segments of the Richardson Highway between 1,500 and 4,500 AADT. Based on these forecast traffic volumes, a qualitative planning level assessment of the Richardson Highway by ADOT&PF revealed no major roadway capacity constraints over the near- and long-term (ADOT&PF 2010-1).

There are currently 1.63 miles of natural gas pipelines within Fort Greely and 1.47 miles of natural gas pipelines in the Tanana Rail Area, with no oil pipelines present. Existing pipeline in ROW should not be impacted by the proposed action. When locations for additional roads, access points, maneuver space and ISBs are determined, avoidance buffers and crossing points to prevent damage to pipeline are required.

In the past, if Fort Greely electrical loads exceed the 2.5-MVA transformer rating, diesel generators were used to meet peak loads. Doyon Utilities recently constructed a new 138 kV Switching Station and new 138 kV Substation with 20 MVA transformer to increase energy capacity at Fort Greely (Doyon 2011-1).

Within the ground training areas, electrical distribution lines extend northeast into and around the Chena River Research Site and the area east of the Delta River as well as along the northwestern and northern sections of TFTA. No commercial power is available in TFTA. Specific alternatives for electrical requirements for the ISB locations are not developed to the point where specific decisions or plans can be made.

Proposed Study Locations

The four ISB potential locations are proposed at key points along the planned rail corridor close to the planned bridge crossings. The optimum solution would be to have ISBs and staging facilities at key locations within major maneuver areas. In any of the proposed areas, the potential requirement for additional infrastructure needs is likely. Currently 1.59 miles of electrical lines and 1.71 miles of telephone lines are located in the four study areas. Additional power lines, fiber optic cable, and road construction requirements may be necessary for permanent ISB facilities. When the location of the selected ISB are determined, extensions to electrical and communication lines can be planned. The use of existing infrastructure discussed and the creation of additional infrastructure and roads would be a beneficial impact for other users of these training areas as the additional infrastructure would improve connectivity to utility and transportation resources in the area.

3.10.11.3.2 No Action

No impacts on infrastructure and transportation would occur under the No Action Alternative.

3.10.11.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.10.11.3.1](#).

3.10.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.10.12.1 Affected Environment

The areas of the proposed ISBs are located in the FNSB and the Southeast Fairbanks Census Area, which are therefore defined as the ROI for the ISB proposed action. The affected environment for the ISB proposal is similar to the area described in the Sections [3.3.12.1](#), Affected Environment, and [3.4.12.1](#), Affected Environment, with the exception of the population under the airspace (see [Table 3-46](#) and [Table 3-54](#)).

3.10.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.10.12.3 Environmental Consequences

3.10.12.3.1 Proposed Action

The proposed action would include construction and use of ISBs at four locations, each composed of permanent barracks, large parking areas, dining facilities, ammunition storage points, a petroleum-oil-lubricant area, and maintenance facilities on approximately 110 acres. In general, construction activities are anticipated to result in temporary and beneficial socioeconomic impacts that would occur only during the construction phase. In addition, the construction of new facilities (either permanent or temporary) for housing up to 1,000 Soldiers would likely result in a beneficial impact on the local economy from additional spending and revenue generated by the incoming personnel. The direct and indirect socioeconomic impacts associated with this action are dependent on the construction expenditures, which are not available at this time, and should be taken into consideration during the siting criteria.

Any impacts to land use, including public access and recreation (as discussed in Section [3.10.10.3.1](#)) or subsistence (in DTA) (Section [3.10.13.3.1](#)) could also have economic impacts. The specific alternatives for the ISB sites are not developed to the point where quantitative economic analysis can be performed. Siting criteria as recommended in Section [3.10.10.3.1](#) would minimize potential adverse impacts to land use concerns and associated socioeconomic resources. Additional analysis would be required to determine socioeconomic impacts associated with the proposed action once the action has been more fully developed and expenditure data is available.

3.10.12.3.2 No Action

Under the No Action Alternative, socioeconomic resources would remain as described under baseline conditions.

3.10.12.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.10.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.10.13.1 Affected Environment

The ROI and affected environment for ISBs is the same as those described for the EGMS (see Section [3.7.13.1](#)).

3.10.13.2 Impact Assessment Methodology

The general methodology for evaluating subsistence is described in Section [3.1.13.2](#).

3.10.13.3 Environmental Consequences

3.10.13.3.1 Proposed Action

As described in Section [3.10.13.1](#), areas of TFTA and YTA that are accessible to the public are not managed for subsistence resources, and Alaska residents are not given priority access to subsistence resources. Therefore, siting of the proposed ISBs within either of these areas is not expected to affect subsistence activities. However, such action may affect recreational access and public access, which are described and considered in Section [3.10.10](#). The proposal for ISBs in DTA may impact subsistence resources. Additional consideration or development of the proposal should address the accessibility of the area to the public, avoidance of traditional use areas for nearby communities, and the monitoring of the impacts of activities within or in the vicinity of the ISB area on the population and distribution of subsistence wildlife and vegetation.

3.10.13.3.2 No Action

Under the No Action Alternative, subsistence activities would continue as currently practiced.

3.10.13.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.10.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.10.14.1 Affected Environment

The affected environment for the ISBs proposal is the same as described for the JAGIC proposal in Section [3.9.14.1](#), Affected Environment, above. [Table 3-94](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children for areas comprising the proposal area.

3.10.14.2 Impact Assessment Methodology

General Methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#) and additional methodology relevant to the six Programmatic Proposals is described in Section [3.7.14.2](#).

3.10.14.3 Environmental Consequences

3.10.14.3.1 Proposed Action

Based on a review of environmental consequences for other resources, adverse impacts could, in many cases, be reduced based on application of siting and operational criteria, SOPs, BMPs, and continuation of mitigation measures used previously; however, further study would be needed. As described under the Enhanced Ground Maneuver proposal, areas accessible to the public in TFTA and YTA are not managed for subsistence resources, whereas those in DTA are managed by the Federal government for subsistence. Subsistence siting and operational criteria and related measures listed in Section [3.10.13.3.1](#) would be applicable for environmental justice.

The information presented below could benefit siting and operations planning by taking into account the location of jurisdictions with greater potential for environmental justice effects:

- Implement siting and operational criteria to reduce potential adverse impacts on land use ([3.10.10](#)).
- Consider whether siting or use of an ISB proposed in DTA that could affect communities with High dependence on subsistence resources, including Healy Lake and Dry Creek, could be minimized and other training areas utilized, i.e., YTA and TFTA.
- The extent of noise impacts from operations would depend on the intensity of training at the ISB and specific nature of operations. Further study would be needed to determine if inhabited non-military areas are adversely affected by high noise levels and if so, additional study of environmental justice effects should be conducted (Section [3.10.2](#)).
- If tiered environmental analysis identifies unmitigated impacts in the ROI, evaluate whether areas used by the public or any inhabited non-military areas would be affected and if so, whether affected populations have higher percentages of minority and low-income populations than the surrounding borough or State, as applicable. If so, additional mitigation measures may need to be evaluated.
- If adverse impacts on traditional cultural resources or Alaska Native activities are identified, develop case-specific mitigations in compliance with NHPA Section 106 and DoD American Indian and Alaska Native Policy (DoD 1998), that can be evaluated during the tiered environmental process to reduce the potential for disproportionately high and adverse environmental or health effects on Alaska Natives (Section [3.10.9](#)).

3.10.14.3.2 No Action

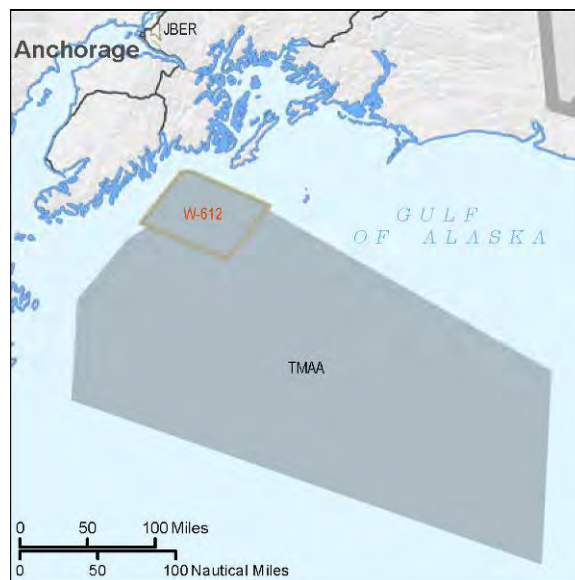
ISBs would not be established in any of the three training areas (DTA, YTA or TFTA). No siting criteria or measures related to environmental justice would be needed.

3.10.14.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.10.14.3.1](#).

3.11 MISSILE LIVE-FIRE FOR AIM-9 AND AIM-120 IN THE GULF OF ALASKA (PROGRAMMATIC)

The AIM-9 and AIM-120 are the main air-to-air armaments for the F-22 Raptor and other Air Force fighter aircraft. These live-fire activities would be executed as part of both individual pilot training and joint training with other air and ground units. The Air Force currently trains in the Gulf of Alaska (GOA) airspace; however, the proposed action would include Air Force fighter aircraft use of AIM-9 and AIM-120 missiles in the GOA warning area, as is currently done by other Services. The proposal includes an additional 100 missile exercises to be undertaken in the TMAA each year. Twenty-four would include AIM-9 Sidewinder missiles and 18 would include AIM-120 AMRAAM missiles. The Navy GOA EIS covers non-Navy participants in joint training exercises, such as the Air Force, but only when joint training activities are occurring the Navy is participating in, since the Navy is the lead agency, prepared the EIS, and prepared and maintains the permits (Navy 2011). This programmatic proposal, as currently conceived, would involve live firing of AIM-9 and AIM-120 missiles into the GOA against drone targets. The proposal area (gray-shaded area in the map to the right) is composed of existing Temporary Maritime Activities Area (TMAA) and Warning Area (W)-612, encompassing 36.5 million acres (57,200 square miles).



3.11.1 Airspace Management and Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.

The GOA airspace in which the Air Force live fire missile operations are proposed is shown in [Figure 2-16](#) (and Appendix D, *Airspace Management*, Figure D-2) relative to the existing airspace environment and the Federal airways, jet routes, and RNAV routes transiting this oceanic region. This proposal would not require any changes to the TMAA and W-612 airspace structure or the routes currently flown by the Air Force to transit to/from this training airspace. Use of these two areas for AIM-9 and AIM-120 operations would be in accordance with those procedures currently established for planning and scheduling this airspace for flight activities and ordnance use. As described in the *The Gulf of Alaska Navy Training Activities Final Environmental Impact Statement/Overseas Environmental Impact Statement* (the *GOA EIS/OEIS*) referenced in Chapter [2.0](#), AIM-9 and AIM-120 missions are currently conducted within this training airspace environment as part of other maritime training activities.

3.11.1.1 Affected Environment

MILITARY AIRSPACE USE

Chapter [2.0](#) describes the existing airspace environment associated with this proposed action that includes W-612 and the TMAA. This airspace is used primarily by the Navy for air and maritime training activities fully described in the *GOA EIS/OEIS* referenced in Chapter [2.0](#). The Air Force conducts occasional training and exercise operations within this GOA airspace, to include participation in the NORTHERN EDGE exercises that utilize both the GOA areas and Alaska MOAs and restricted areas.

CIVIL AVIATION AIRSPACE USE

Most civil aviation airspace uses in this southern Alaska region are sufficiently distant from the off-shore location of W-612 and the TMAA so as to be unaffected by military operations in this airspace. The closest public airport to the W-612 area is Seward, which is inland approximately 25 NM from the W-612 northern boundary. Airport data from 2009 indicate this airport has general aviation and air taxi services that average 29 daily operations (AirNav 2011). The RNAV instrument arrival and departure procedures published for this airport are not affected by W-612.

As shown in Appendix D, *Airspace Management*, Figure D-2, Federal airways and jet routes transit the W-612 and TMAA region to include three RNAV routes (B453, B757, and T264) that provide direct GPS navigation routing across this oceanic environment. IFR air traffic operating within this area are under the positive control of the Anchorage ARTCC, which is the designated center for managing international flights using these oceanic RNAV routes. Therefore, the ARTCC provides required separation between this IFR traffic and military operations when this training airspace is in use. Routes used by the Air Force to transit between JBER and this GOA airspace are separated from IFR air traffic and at altitudes above those normally flown by VFR aircraft.

3.11.1.2 Impact Assessment Methodology

The methodology described in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.1.1, was considered in the review of any potential impacts this proposal may have on other airspace uses in the affected region.

3.11.1.3 Environmental Consequences

3.11.1.3.1 Proposed Action

The proposed action would involve a limited number of sorties (estimated 100 annually) from JBER that would have a minimal effect on the overall annual operations conducted in this airspace by other military flight activities. There would be no changes to any airspace or routes used by JBER aircraft while transiting to/from W-612 and the TMAA. Therefore, there would be minimal impacts on any other airspace uses in this environment.

3.11.1.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during air-to-air missile exercises in the GOA TMAA during up to two joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the GOA EIS/OEIS Record of Decision (Navy 2011).

3.11.1.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.11.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.11.2.1 Affected Environment

The affected areas are the area beneath W-612 and the GOA TMAA. These areas are both located entirely over the GOA and are no closer than 12 NM from the shoreline. Human activity in these areas is rare, consisting primarily of military training exercises and commercial endeavors such as fishing and shipping. The Navy conducts training exercises in this same area, including air-to-air missile training with AIM-7, AIM-9, and AIM-120 missiles (Navy 2011).

3.11.2.2 Impact Assessment Methodology

Noise impacts associated with the proposed firing and detonation of AIM-9 and AIM-120 missiles were assessed using the same methods used to assess the noise of large arms associated with the RLOD. These methods are described in Section [3.2.2.2](#).

3.11.2.3 Environmental Consequences

3.11.2.3.1 Proposed Action

Under the proposed action, approximately 100 live AIM-9 and AIM-120 missiles would be fired annually in W-612 and the GOA TMAA. This type of missile training is typically conducted at altitudes at or above 15,000 feet MSL (Navy 2011). Detonations of AIM-9 and AIM-120 missiles generate peak noise levels of 117 dB and 120 dB, respectively, at a distance of 15,000 feet under unfavorable weather conditions (85 percent of events would generate lower noise levels). Detonation noise events could be annoying to persons in the vicinity of the detonation. However, in accordance with existing safety exclusion zone SOPs, all nonparticipants must be cleared from the area prior to missile training events. Because the proposed training would occur in remote and off limits areas, noise effects on humans would be limited.

3.11.2.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during air-to-air missile exercises in the GOA TMAA during up to two joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the GOA EIS/OEIS Record of Decision (Navy 2011).

3.11.2.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.11.3 Safety (No Analysis Needed)

FLIGHT SAFETY

This proposal does not include any airspace actions or flight activities beyond those that currently exist within the surrounding airspace environment; therefore, there would not be any additional flight safety concerns associated with the proposed actions. The Air Force proposal for use of the AIM-9 and AIM-120 missile systems in the GOA would not require any changes to W-612 or the TMAA and would not significantly increase the current use of this airspace by those aircraft conducting these training activities. The flight safety factors discussed in Section [3.1.3](#) would be considerations relevant to transit on established routes between JBER and the GOA and to operations within this airspace.

GROUND SAFETY

This alternative does not include activities that pose ground safety hazards, such as air-to-ground or live-fire ordnance training. Consequently, impacts on ground safety are not expected.

3.11.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.11.4.1 Affected Environment

The proposed missile live-firing exercises would take place over the GOA in an area more than 12 NM from the Alaskan coast. The ADEC does not regulate sources of emissions beyond 3 NM from the Alaskan coast. There are no substantial sources of emissions in this area except for Navy training and ship activities. Therefore, the air quality in this region is generally good.

3.11.4.2 Impact Assessment Methodology

EO 12114, *Environmental Affects Abroad of Major Federal Actions*, requires Federal agencies to analyze major Federal actions outside U.S. territorial waters, including the Exclusive Economic Zone (EEZ) of the United States, which encompasses the areas from 12 NM (22.2 km) out to 200 NM (370.4 km) from shore.

Currently, this action is in its developmental stages and sufficient data is not available to analyze air quality impacts. This proposed action will result in an increase in emissions in the region from the use of the AIM-9 and AIM-120 missile systems. Once sufficient data is available, the environmental impacts of this proposed action will be analyzed by the Air Force as a separate NEPA action.

3.11.4.3 Environmental Consequences

3.11.4.3.1 Proposed Action

There are no proposed construction activities associated with the missile live-fire action. Air quality impacts from operational activities associated with the missile live-fire action would occur from (1) combustive emissions due to the use of aircraft, and (2) combustive emissions due to ordnance expenditures.

Operational information needed to calculate the air emissions resulting from increased activities associated with the missile live-fire action includes the following:

- Information regarding any increase in munitions expenditures associated with the proposed action, including the types of munitions and the baseline and expected utilization of each munitions type
- Sortie information, including the types of aircraft and their engines, durations in the affected area, and altitude distributions

The emissions factors needed to derive construction source emission rates are found in *Compilation of Air Pollution Emission Factors* (EPA 1995) and *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEE 2009).

3.11.4.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during Air-to-Air Missile exercises in the GOA TMAA during up to two

joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the GOA EIS/OEIS Record of Decision (Navy 2011).

3.11.4.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.11.5 Physical Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5. Given that this programmatic action involves no disturbance of any land surface, no beneficial or adverse impacts of this action on physical resources within the study area are expected to occur. This resource is, therefore, not further analyzed for this proposal.

3.11.6 Water Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6.

3.11.6.1 Affected Environment

Alaska's water resources, including the GOA, are generally in pristine condition because of the low intensity of use in this remote area (EPA 2004). Marine water resources in the study area are affected by ocean currents, climate and weather patterns, and bathymetry. Ocean currents influence conditions by altering surface water temperatures, transporting and depositing sediments, and concentrating or diluting the resources on which marine life depends. Similarly, prevailing winds change with the season and alter the movement of surface waters. During spring and summer, southerly winds push surface waters away from the coast and bring cold, nutrient-rich waters from deeper areas, a process known as upwelling. These processes sustain active fisheries for a variety of fish and marine invertebrates, influence weather patterns and the hydrologic cycle of much of the western United States, and play a vital role in the economy of many coastal communities.

The proposed action would occur in the TMAA. The TMAA covers approximately 42,146 square nautical miles (NM²) (145,482 km²) of ocean in the GOA. The TMAA spans both coastal and deepwater habitats, ranging from approximately 426 feet (130 meters) to over 12,000 feet (3,660 meters) in depth. The GOA forms a large, semicircular bight opening southward into the North Pacific Ocean. The GOA is characterized by a broad and deep continental shelf containing numerous troughs, seamounts, and ridges. The region receives high amounts of freshwater input, experiences numerous storms, and exhibits highly variable environmental conditions (Navy 2011).

3.11.6.2 Impact Assessment Methodology

The general methodology for evaluating water resources is described in Section [3.2.6.2](#).

3.11.6.3 Environmental Consequences

3.11.6.3.1 Proposed Action

The impacts of AIM-9 and AIM-120 on water resources in the GOA are discussed in detail in the *GOA EIS/OEIS* (Navy 2011). In summary, missiles used in training (AIM-9 and AIM-120) would not be

recovered during the training exercises. The hazardous substances deposited by the AIM-9 and AIM-120 include unexpended propellants (ammonium perchlorate), battery constituents (lead, silver, copper, and lithium), undetonated explosive warheads (ammonium perchlorate), and heavy metals (chromium, lead, tungsten, nickel and cadmium) (Navy 2011). The hazardous substances consist of approximately 0.83 percent of the missiles by weight. Missile casings are relatively inert, and would corrode in the marine environment. Corrosion and benthic organisms would encrust the missile body, slowing degradation. The TMAA is over 42,000 NM² and missiles would be dispersed throughout this area. With the low frequency and high dispersion of the missiles, there would be no substantial adverse impacts on biological resources (see discussion in [3.11.8.3.1](#)). Thus, expended training materials would have potential adverse but not significant impacts on ocean water resources.

3.11.6.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during Air-to-Air Missile exercises in the GOA TMAA during up to two joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the GOA EIS/OEIS Record of Decision (Navy 2011).

3.11.6.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.11.7 Hazardous Materials and Waste

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7.

3.11.7.1 Affected Environment

MUNITIONS-RELATED RESIDUE

ALCOM currently conducts training activities in the GOA that generate munitions-related residue. Specific to the GOA, munitions-related residue sources include the propellants, explosives, and batteries of AIM-9 and AIM-120 missiles. The AIM-9 and AIM-120 missiles use a solid propellant that is primarily composed of rubber (polybutadiene) mixed with ammonium perchlorate (Navy 2011). Munitions that fail to detonate properly (duds) and munitions that only partially detonate (low-order detonations) can result in the deposition of munitions residues (explosives and metals) at impact sites. Duds and low-order detonations have the potential to create environmental contamination by the leaching of explosive filler into the sea.

Aerial drone targets are currently used for training in the GOA (Navy 2011). These aerial targets contain hazardous components such as pyrotechnics, batteries, and POLs, which can potentially leach into marine waters of the training area.

CONTAMINATED SITES

There are no CERCLA Superfund sites listed on the National Priorities List in missile live-fire areas of the AIM-9 and AIM-120 ROI. In addition there are no contaminated sites listed on the ADEC or Army Environmental Restoration databases.

3.11.7.2 Impact Assessment Methodology

The general methodology for evaluating hazardous materials and waste is described in Sections [3.1.7.1](#) and [3.1.7.2](#).

3.11.7.3 Environmental Consequences

3.11.7.3.1 Proposed Action

The proposed action involves live firing over the GOA with AIM-9 and AIM-120 missiles.

GENERAL HAZARDOUS MATERIALS AND WASTE

There would be no refueling or maintenance of aircraft conducted in the Missile Live-Fire for AIM-9 and AIM-120 proposed action ROI. Therefore, operational impacts would not occur with respect to general hazardous materials and waste.

HAZARDOUS MATERIALS AND WASTE SPECIFIC TO MUNITIONS

There is the potential for residual releases of hazardous materials associated with the use of the AIM-9 and AIM-120 missiles and target drones in the GOA. Hazardous materials related impacts of AIM-9 and AIM-120 in the GOA are discussed in detail in the *GOA EIS/OEIS* (Navy 2011). In summary, missiles used in training (AIM-9 and AIM-120) would not be recovered during the training exercises. The missiles contain propellants and high-explosive components, which can be hazardous. Residual explosives and solid propellants will slowly leach hazardous substances, but would not result in concentrations considered harmful. Missile casings are relatively inert, and will corrode in the marine environment. Corrosion and benthic organisms will encrust the missile body, further slowing degradation. Thus, expended training materials will have no beneficial or adverse hazardous materials impacts on marine water quality.

In addition, training exercises would likely result in destruction of ordnance and/or targets, which could result in residual concentrations of hazardous materials and petroleum products being released directly into the marine environment. This issue was similarly discussed in the *GOA EIS/OEIS* (Navy 2011). The infrequency and limited volume of such residual concentrations of hazardous substances would similarly not result in concentrations considered harmful. Thus, expended training materials will have no beneficial or adverse hazardous materials impacts on marine water quality.

3.11.7.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during Air-to-Air Missile exercises in the GOA TMAA during up to two joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the GOA EIS/OEIS Record of Decision (Navy 2011).

3.11.7.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.11.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.11.8.1 Affected Environment

The activities associated with the proposed Missile Live-Fire for AIM-9 and AIM-120 in the GOA would take place within the TMAA, which has been designated over a portion of the GOA. The TMAA, an area 42,146 NM² (145,482 km²) in extent, is described in *GOA EIS/OEIS* (Navy 2011), which is incorporated by reference. The following description is based on that document.

The TMAA lies seaward of the Kenai Peninsula and Kodiak Island and extends approximately 300 NM (556 km) to the southeast (refer to [Figure 2-15](#)). The nearest shoreline is approximately 24 NM (44 km) north of the TMAA's northern boundary. The TMAA spans both coastal and deepwater habitats. Water depths range from about 426 feet (130 meters) to over 12,000 feet (3,660 meters) in the Aleutian Trench. Biological resources of TMAA include productive fisheries and EFH, a designation under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). Several Federally listed endangered or threatened species are present in the TMAA, including five salmonid fish species, the short-tailed albatross, seven species of marine mammals, and the leatherback turtle. Four seamounts and two areas of continental slope designated as Habitat Conservation Areas are included within the TMAA.

The TMAA and vicinity, a highly productive region for various marine fish and shellfish populations, supports some of the most productive fisheries in the United States (Lanksbury et al. 2005). Six dominant species of salmonids may occur in the TMAA: Chinook (*Onchorhynchus tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), pink (*O. gorbuscha*), sockeye (*O. nerka*), and steelhead (*O. mykiss*). Salmonids found in the GOA are anadromous fish species that spend at least part of their adult life in the ocean but return to freshwater environments to spawn.

A total of 68 fish and invertebrate species designated EFH occur in the TMAA. They are grouped into the high-seas salmon (five species), scallop (four species), and groundfish complex (59 species).

Various Evolutionary Significant Units (ESUs) or Distinct Population Segments (DPSs) of salmonids (Chinook salmon, coho salmon, chum salmon, sockeye salmon, and steelhead), which are listed as endangered or threatened under the ESA, migrate north to mature in the GOA and may occur in the TMAA. While these listed salmonids, which spawn in Washington, Oregon, or California, have designated critical habitat, none of the critical habitat occurs within the TMAA. Salmon (Chinook and coho, in particular) support important traditional, commercial, and recreational fisheries in the GOA and have long been an integral part of the Native American culture (NPFMC 1990).

Marine mammals expected in the TMAA include cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions). Additional species, such as the sea otter, may occur there but are outside their normal habitat preferences and range and are thus considered extralimital. Additionally, several species protected as threatened or endangered under the ESA, including seven cetaceans and two pinnipeds, are documented from the TMAA. Of these, three species are considered common in the TMAA (fin whale, humpback whale, Steller sea lion [both eastern and western U.S. stocks]). The sea otter and Cook Inlet beluga whale are considered extralimital in the TMAA, and the sperm whale, blue whale, North Pacific right whale, and Sei whale are considered rare to very rare in the TMAA. No marine mammal species have designated critical habitat within the TMAA. All marine mammals are protected under the Marine Mammal Protection Act (MMPA).

The TMAA supports a variety of resident and migratory seabirds and sea ducks. Since the TMAA occurs mostly over the outer shelf slope and deeper ocean waters, this area is dominated by species that use the

region seasonally and are not land-based outside the nesting season. Habitats nearer the shoreline than the TMAA support a greater diversity and greater numbers of sea birds.

One bird species normally found in the TMAA, the short-tailed albatross (*Phoebastria albatrus*), is protected as endangered under the ESA. Steller's eider (*Polysticta stelleri*), Federally listed as threatened, is found in nearshore waters of the GOA during winter but is unlikely to occur in the TMAA. Its breeding range is hundreds of miles to the north and west of the TMAA.

3.11.8.2 Impact Assessment Methodology

The general methodology for evaluating biological resources is described in Section [3.1.8.2](#).

3.11.8.3 Environmental Consequences

3.11.8.3.1 Proposed Action

Approximately 100 live-fire sorties with the AIM-9 Sidewinder and AIM-120 AMRAAM air-to-air missile systems would be conducted annually in the TMAA and W-612 offshore in the GOA. The missiles would be fired from fighter aircraft. The Navy is already training with these weapons in this area so this would be an increase in operations and possibly an expansion of season of use but not a completely new effect for this area. Air-to-air missiles are fired from aircraft against aerial targets to provide aircrews with experience using aircraft missile firing systems and training on air-to-air combat tactics. The missiles may have live explosive warheads or inert telemetry packages. The main aerial targets are flares suspended from parachutes for heat-seeking missiles (AIM-9) and tactical air-launched decoys for radar-guided missiles (AIM-120). The targets typically are launched by other aircraft participating in the exercise. The expended missiles, paraflares, and decoys would not be recovered after use. Expended training materials that come to rest on the ocean floor may:

1. Lodge in oxygen-poor sediments;
2. Remain on the ocean floor and corrode; or
3. Remain on the ocean floor and become encrusted by marine organisms.

These items have the potential to release toxic constituents including unexpended propellants, battery constituents, undetonated explosive warheads, and heavy metals, locally affecting water quality and marine life in the immediate vicinity of the item. The amounts of materials released would depend on the specifics of the engagement (length of travel, whether or not the missile hit its target and the warhead detonated, etc.) and individual items would be dispersed and would not concentrate in a single area, given the nature of air-to-air combat. Analysis of the fate and effects of these constituents is contained in the *GOA EIS/OEIS* (Navy 2011).

Primary resource concerns and avoidance areas include the following:

- Sixty-eight fish and invertebrate species with designated EFH
- Four seamounts and two areas of continental slope designated as Habitat Conservation Areas
- ESUs or DPSs of salmonids (Chinook salmon, coho salmon, chum salmon, sockeye salmon, and steelhead), listed as endangered or threatened
- Seven species of endangered or threatened cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions)
- Endangered leatherback sea turtle

- Resident and migratory seabirds and sea ducks
- Endangered short tailed albatross

There is potential for adverse but not significant effects on biological resources from proposed AIM-9 and AIM-120 activities, given the low frequency and high dispersion of the air-to-air missile firings and the considerations related to the fate and effects of munitions constituents outlined above. Because of the presence of endangered and threatened species in the project area, compliance with ESA Section 7 requirements would be necessary including formal or informal consultation with NOAA Fisheries and USFWS. DoD will initiate consultation with USFWS and NOAA Fisheries under ESA Section 7 and meet requirements of the MMPA if the Missile Live-Fire proposal is developed into a definitive action.

3.11.8.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during air-to-air missile exercises in the GOA TMAA during up to two joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the GOA EIS/OEIS Record of Decision (Navy 2011).

3.11.8.4 Considerations for Future Planning

In addition to siting criteria and vegetation clearing guidelines listed in Section [3.7.8.3](#), other measures, BMPs, and SOPs that should be applied to ground-disturbing activities are included in Appendix G, *Biological Resources*.

3.11.9 Cultural Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9. No potential for impacts on cultural resources are expected with the increased missile usage in the GOA, given the assumption that there is no construction required related to this action, and that there are no cultural resources in the GOA beneath the TMAA and W-612. This resource is therefore not further analyzed for this programmatic proposal.

3.11.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.11.10.1 Affected Environment

RESOURCE STATUS, MANAGEMENT AND USE

There is no land within the Missile live fire for AIM-9 and AIM-120 proposal area in the GOA proposal area. However, the water resources of the GOA within this proposal area are used for both public and military activities. The following description of activities and uses in the proposal area are extracted from the 2011 *GOA EIS/OEIS* prepared by the Navy.

Military Use Areas

Warning Area 612 (W-612)

Warning Areas are located over domestic or international waters, or both. W-612 consists of about 2,256 NM² (8,766 km²) of airspace, most of which overlaps the GOA TMAA. When not included as part of the TMAA, W-612, which provides 2,256 NM² (8,766 km²) of SUA, is used by the Air Force to

conduct training in anti-air warfare (AAW) and by the U.S. Coast Guard to fulfill some of its training requirements. Air Force and Coast Guard activities conducted as part of joint training within the TMAA are included in the *GOA EIS/OEIS* analysis.

Gulf of Alaska Temporary Maritime Activities Area (TMAA)

The GOA TMAA, a water resource established in conjunction with the FAA, defines the boundaries of this proposal area. As stated in the *GOA EIS/OEIS*, the TMAA is located in the Northeast Pacific Ocean off the mountainous coast of southern Alaska. The TMAA is a polygon that roughly resembles a rectangle oriented from northwest to southeast, approximately 300 NM (555.6 km) in length by 150 NM (277.8 km) in width, located south of Prince William Sound and east of Kodiak Island. The nearest mainland shoreline (Kenai Peninsula) is located approximately 24 NM (44 km) north of the TMAA’s northern boundary (Navy 2011).

The TMAA is a surface, undersea space and airspace maneuver area within the GOA for ships, submarines, and aircraft to conduct required training activities. Commander Submarine Force, U.S. Pacific Fleet 2 (COMSUBPAC) manages this underwater space as transit lanes and operational areas for U.S. submarines. The undersea area extends to the seafloor (Navy 2011). The dimensions of the air, sea surface and underwater resources of the TMAA and W-612 are provided in [Table 3-101](#).

Table 3-101. Dimensions of Air, Sea and Undersea Associated with the Missile Live-Fire Proposal Area

Area Name	Airspace (NM ²)	Sea Space (NM ²)	Undersea Space (NM ²)
TMAA	42,146	42,146	42,146
W-612	2,256	2,256	2,256

Key: NM²=square nautical miles.

Coastal Zone Management

The Alaskan Legislature enacted the Alaska Coastal Management Act in 1977 (Chapter 84 State Legislature of Alaska 1977), which established the Alaska Coastal Management Program (ACMP). This program was subsequently ended in July 2011. The Coastal Zone defined by the ACMP extends from 3 nautical miles (5.6 km) offshore to inland areas necessary to control the shoreline, and where land uses would have a substantial effect on coastal resources. The ACMP addressed a variety of issues, including the sustainability of fisheries, impacts of mining, transportation needs and impacts, and other areas of concern within the clear zone. ADNDR remains as the primary authority for managing marine and coastal resources in accordance with applicable Alaska state laws and regulations.

Inland Areas

Areas inland from the coastline, including Air Force air ranges and Army training lands, are addressed in the *Final Alaska MOA EIS* (Air Force 1997-1), *Improvements to Military Training Routes in Alaska Environmental Assessment* (Air Force 2007-3), *Alaska Army Lands Withdrawal Renewal Final Legislative EIS* (USARAK 1999-1) and the *Transformation of U.S. Army Alaska FEIS* (USARAK 2004-1).

PUBLIC USE OF THE GULF OF ALASKA

Commercial Shipping

The GOA is traveled by large and small marine vessels, with several commercial ports occurring near the TMAA. Two major ports near the TMAA, Anchorage and Valdez, were ranked in the top 150 U.S. ports by tonnage in 2000. Commercially used waterways traverse the TMAA, but are controlled by the use of directional shipping lanes for large vessels (cargo, container ships, and tankers). Ships traveling from

major ports to the Lower 48 states and Hawaii as well as marine traffic between coastal ports enter the TMAA briefly, but Navy activities are communicated to all vessels and operators by use of Notice to Mariners (NOTMAR) available on public websites (Navy 2011).

Commercial Fishing

Commercial fishing takes place throughout the GOA waters and in coastal inlets and bays. The North Pacific Fishery Management Council (NPFMC) is one of eight regional fishery management councils (Councils) established by the MSFCMA for the purpose of managing fisheries 3 to 200 miles (1.8 to 370 km) offshore of the U.S. coastline (Carroll 2006). The primary responsibility of the NPFMC is the groundfish fisheries in the Federal waters of the Bering Sea and the GOA. The groundfish include cod, flatfish, mackerel, Pollock, sablefish, and rockfish species outside of 3 miles offshore. Other large Alaska fisheries such as salmon, crab and herring are managed by the ADFG. The commercial fish resources of Alaska are of great importance to the economies of the state and the nation (Navy 2011). All commercial shellfish fisheries in State and Federal waters are managed by the ADFG. Ocean areas with fisheries near the TMAA are located around Kodiak Island (Navy 2011).

PUBLIC ACCESS TO THE GULF OF ALASKA

Aerial Access

Public use of airspace is primarily for transit to other destinations. This topic is discussed in Section [3.11.1](#), Airspace Management and Use.

Navigable and Public Waters

The waters of the TMAA are available to civilian vessels, except during hazardous training activities. During such activities, the public is excluded because of safety concerns. NOTMARs and NOTAMs are issued to notify the public about the hazards of operating vessels or aircraft in the vicinity. Typical, civilian access throughout the GOA are commercial shipping, commercial shipping, tourist-related activities, and the ferry service for passengers and vehicles between coastal communities provided by the Alaska Marine Highway System (AMHS) (AMHS 2011) (Navy 2011).

RECREATION USE IN THE GULF OF ALASKA

Recreation and Tourism

Recreation and tourist areas around the TMAA include the Kenai Peninsula, Kodiak Island, Prince William Sound, and Resurrection Bay (ADNR 2008). There are 9 state parks on the Kenai Peninsula as well as Kenai Fjords National Park, 6 on the island of Kodiak, 14 marine parks in Prince William Sound, and 5 in Resurrection Bay. The parks offer a variety of activities close to shore such as sea kayaking, saltwater and freshwater fishing, and recreational boating. Most recreational boating occurs close to shore in protected coves because of dangerous Gulf waters (NPS 2012; Navy 2011).

Many people choose to navigate the GOA on ferries giving the spectacular views of glaciers, fjords, lush forests, and concentrations of seabirds and marine wildlife. Cruise travel along the GOA is a popular recreational activity and is the fastest growing tourist trade. With excellent fishing and stunning coastal scenery, many visitors to the GOA choose to tour the area by boat and can choose from single-day to multi-day cruises (Alaska Travel Industry Association 2012) (Navy 2011).

Whale watching in South-central Alaska and the GOA occurs between June and early September, with August being the prime viewing month. A number of charter boat companies run whale watching cruises throughout the area (Navy 2011).

3.11.10.2 Impact Assessment Methodology

General methodology pertaining to evaluating land use, public access and recreation are described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The method for assessing impacts for this programmatic proposal is similar to that described in Section [3.7.10.2](#). This assessment is based on the following assumptions:

- The proposal does not involve any change in dimensions or capabilities of any SUA or military-use maritime activity areas.
- No new types of munitions or weapons are proposed.
- To reduce potential impacts to sport and subsistence fishing activities in the GOA, coordinate military schedules to minimize operations during seasons that are important for marine harvesting.

3.11.10.3 Environmental Consequences

3.11.10.3.1 Proposed Action

Proposed operations for this proposal are similar to those recently analyzed by the Navy in the *GOA EIS/OEIS* (Navy 2011). The proposal includes an additional 100 missile exercises to be undertaken in the TMAA each year. The Navy GOA EIS covers non-Navy participants in joint training exercises, such as the Air Force, but only when joint training activities are occurring that the Navy is participating in, since the Navy is the lead agency, prepared the EIS, and prepared and maintains the permits (Navy 2011). Consequently, this EIS has the same findings and recommends the same mitigations measures to minimize impacts on public, private and commercial maritime uses as those identified in the Navy's EIS.

3.11.10.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during air-to-air missile exercises in the GOA TMAA during up to two joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the *GOA EIS/OEIS* ROD (Navy 2011).

3.11.10.4 Considerations for Future Planning

Measures described in the Navy's *GOA EIS/OEIS* to minimize effects on non-military maritime activities should be included in future proposals for live missile fire for Air Force activities in the GOA.

3.11.11 Infrastructure and Transportation

Under consideration in this section are waterborne transportation resources. For additional information on transportation and utility resources in the region, reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11.

3.11.11.1 Affected Environment

As provided from the *Navy GOA EIS*, this is an element of JPARC joint training capabilities utilized during major joint force exercises.

MARINE TRAFFIC

A significant amount of ocean traffic consisting of military, Coast Guard, and commercial and recreational vessels transit through the GOA. For commercial vessels, the major transoceanic routes enter the TMAA briefly in transit. The approach and departure routes into the inland waters can be adjusted depending on notification of Navy activities through NOTMARs, which are found at <http://www.navcen.uscg.gov/lnm/d17/>.

MILITARY

Military traffic consists of the transit of large military vessels at sea, including submarines. Total surface area of the TMAA is 42,146 NM² (145,482 km²). The TMAA undersea training area lies beneath the surface and extends to the seafloor.

Commander, Submarine Force, U.S. Pacific Fleet,² manages this underwater space as transit lanes and operational areas for U.S. submarines.

CIVILIAN

Marine vessels, large and small, transit the GOA to several commercial ports lying near the TMAA. Vessel traffic approaching these ports is managed by the Vessel Traffic Service, which is operated jointly by the Coast Guard and the Marine Exchange of Alaska (a nonprofit organization established to serve the Alaska Maritime Community by providing information, communications, and services to ensure safe, secure, efficient, and environmentally responsible maritime operations). The Vessel Traffic Center is located in Valdez at the north end of Prince William Sound (USCG Navigation Center 2012). The ocean traffic flow in congested waters, especially near coastlines, is controlled by the use of directional shipping lanes for large vessels, including cargo ships, container ships, and tankers. Traffic flow controls are also implemented to ensure that harbors and ports-of-entry remain as uncongested as possible.

Two major ports close to the TMAA, Anchorage and Valdez, were ranked in the top 50 U.S. ports by tonnage in 2010 (DOT 2011). Commercially navigable waterways traverse the TMAA, but are controlled by the use of directional shipping lanes for large vessels (cargo ships, container ships, and tankers). Ships traveling from major ports to the Lower 48 and Hawaii, as well as marine traffic between coastal ports, enter the TMAA briefly, but Navy activities are communicated to all vessels and operators through NOTMARs, which are found at <http://www.navcen.uscg.gov/lnm/d17/>.

In addition to large commercial vessels traversing the GOA, the AMHS provides ferry service for passengers and vehicles between coastal communities (AMHS 2011). The Southwest Alaska route services Prince William Sound, Kodiak Island, the Alaska Peninsula, and the Aleutian Islands. The ferry route closest to the TMAA provides service to Chenega Bay in Prince William Sound and the town of Kodiak on Kodiak Island. The route is one of the least-busy routes; there were only 13 sailings in 2010 (AMHS 2011).

3.11.11.2 Impact Assessment Methodology

The methodology used to assess impacts of this proposed action—i.e., use of the GOA for Air Force live-fire AIM-9 and AIM-120 missile exercises—on marine infrastructure and transportation would

² The Commander Submarine Force, U.S. Pacific Fleet is the principal advisor to the Commander in Chief, U.S. Pacific Fleet, for submarine matters. The Force provides antisubmarine warfare, anti-surface ship warfare, precision land strike, mine warfare, intelligence, surveillance, early warning, and special warfare capabilities to the U.S. Pacific Fleet and strategic deterrence capabilities to the U.S. Strategic Command.

involve defining all of the requirements for proposal support, including thorough coordination and consultation with the Navy. As yet, sufficient information has not been developed with regard to the impacts of the Air Force proposal or to all requirements and authorizations necessary for a definitive decision.

3.11.11.3 Environmental Consequences

Recreation and commercial mariners could be impacted by such access restrictions. Possible delays could also occur to the AMHS on its Cross Gulf Route. The ferry runs from May through September on bi-monthly trips from Prince Rupert, Ketchikan and Juneau in the southeast to Whittier in southwest, with stops in Yakutat. This route is used as a service link between the Inside Passage in the Southeast and the Southwestern routes as well as for tourists (AMHS 2011).

As with the Navy *GOA EIS/OEIS*, training areas would remain accessible to the public for commercial and recreational purposes when not being used for military training activities. During planned missions, the Air Force would provide advance notice of training schedules to Federal regulatory agencies. In addition, the FAA would publish information regarding temporary access restrictions to airspace via NOTAMs on its Web site. Mariners would access the Coast Guard's Local NOTMARs Web site to adjust their routes to avoid temporarily restricted areas (Navy 2011).

Mission activities would be conducted in areas away from shipping lanes to allow marine traffic to flow freely. NOTMARs and NOTAMs would substantially reduce possible congestion when training activities occur within shipping or high traffic areas. The *GOA EIS* stated that the proposed mission activities would not have a significant effect on air or marine traffic. Additional analysis in the EIS indicated that there would be no risk to public safety from the proposed action, because of the Navy's implementation of range clearance procedures and SOPs on land and at sea prior to training and testing activities.

3.11.11.3.1 Proposed Action

The Air Force needs a fully instrumented range, which would require considerable investment. The locations in the GOA will need to be reviewed to determine impacts on transportation and shipping routes in the GOA. This proposed action will require additional study to determine all requirements needed to support this proposal. Sufficient information is currently not available to fully identify and evaluate these requirements.

3.11.11.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during Air-to-Air Missile exercises in the GOA TMAA during up to two joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the *GOA EIS/OEIS* ROD (Navy 2011).

3.11.11.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.11.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.11.12.1 Affected Environment

The location of the proposed action includes the existing TMAA and W-612 in the GOA south of Prince William Sound and East of Kodiak Island. These areas, along with the surrounding Valdez-Cordova Census Area, Kenai Peninsula Borough, Kodiak Island Borough, and the Matanuska-Susitna Borough, are defined as the ROI for this analysis.

ECONOMIC ACTIVITY

Cordova, accessed only by plane or boat, is directly linked to the North Pacific Ocean shipping lanes through the GOA. This home rule city supports a large fishing fleet for Prince William Sound and several fish-processing plants. The largest employer is Trident Seafoods, Inc. Harvested fish in the area include, among others, red salmon, pink salmon, herring, halibut, and bottom fish. A reduction in salmon prices has adversely affected the economy of Cordova (ADCCED 2011). Nearly half of all households in Cordova have someone employed by the commercial harvesting or processing industry (ADCCED 2011).

The home rule city of Valdez is located on the north shore of Port Valdez, a deep-water fjord in Prince William Sound. The community is the southern terminus for the Trans-Alaska Pipeline and off-loading point for oil extracted from Prudhoe Bay on the North Slope. Federal, State, and city agencies are among the major employers in the home rule city. Also located in Valdez is a \$48 million cargo and container facility, two fish-processing plants and a year-round Fisheries Development Association (ADCCED 2011).

The Kenai Peninsula Borough has a diverse economy, with off-shore oil and gas production in Cook Inlet and downstream production north of Kenai. Visitors to the Kenai Peninsula seek sport fishing and other recreational activities. Important economic contributors to the area include commercial fishing and fish processing, particularly for such species as salmon, cod, and halibut (ADCCED 2011).

Fishing and fish processing are among the top industries on Kodiak Island, located on the western side of the GOA. Major employers include Federal, Coast Guard, State, borough, and city agencies. Subsistence and sport fishing are also prevalent activities in the borough (ADCCED 2011).

The economy of the Matanuska-Susitna Borough is fairly diverse; residents are employed in a variety of retail, professional, and government occupations. Due to the borough's proximity to Anchorage, nearly one-third of its labor force commutes (ADCCED 2011).

COMMERCIAL SHIPPING

See Section [3.11.10.1](#), Public Use of the GOA for discussion on commercial shipping.

COMMERCIAL FISHING

Commercial fishing and fish processing are key economic industries and employers in Alaska, particularly in areas in the ROI bordering the GOA, including the Kenai Peninsula Borough, Kodiak Island Borough, and Valdez-Cordova Census Area. See [Table 3-102](#) for 2010 commercial fishing permits reported by region.

Table 3-102. Commercial Fishing Permits by Region, 2010

Region	Number of Residents with Commercial Fishing Permits	Percent of Total Regional Population Holding Commercial Fishing Permit
Cordova	337	15
Kenai Peninsula Borough	1,427	2.6
Kodiak Island Borough	588	4.3
Matanuska-Susitna Borough	300	<1
Valdez	52	1.3

Source: ADCCED 2011.

RECREATION AND TOURISM

Recreation and tourism are important contributors to Alaska’s economy. The GOA offers many recreation and tourist opportunities to in-state and out-of-state visitors. The majority of activities in the GOA include commercial fishing, recreational fishing, whale watching, and sightseeing. Most recreational activities in the GOA occur closer to shores near protected waters. Popular recreational and tourist spots around the TMAA include state parks on the surrounding lands. For additional information on recreation in the area of the proposed action, see Section [3.11.10.1](#) (Recreation subsection).

3.11.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.11.12.3 Environmental Consequences

3.11.12.3.1 Proposed Action

A concern expressed during the public scoping period were the economic impacts, particularly potential for closure of fishing fleets.

In a recent study, the *Navy GOA EIS/OEIS* (Navy 2011), the Navy analyzed the potential impacts from military training operations performed in the TMAA, which included AIM-9 and AIM-120 training activities. Based on the *Navy GOA EIS/OEIS*’s Preferred Alternative, there are up to six events of the air-to-air missile exercises annually in which eight AIM-9 and six AIM-120 missiles are expended every two events. The air-to-air exercises last about 1 hour and are conducted in the TMAA outside of 12 NM (22 km) and above 3,000 feet (914 meters). The total maximum time period the Navy conducts their training and exercises is 21 consecutive days for each event during the summer months (April through October) (Navy 2011). The Navy EIS determined that there would be no significant impacts on socioeconomic resources due to advanced public notification of military activities using the NOTAM and NOTMAR systems, and due to the primarily short-term duration of military activities.

If the use of the TMAA for live delivery of the AIM-9 and AIM-120 missiles by Air Force fighter aircraft as proposed under this action occurs during times when the Navy performs their training, then there would be no need for additional restrictions. However, if the Air Force operations are performed at times other than those currently utilized by the Navy, then additional restrictions would be required and could result in impacts. The significance of these impacts would depend on the length and frequency of these restrictions and this information is not available at this time. Similar to recommendations made in the *Navy GOA EIS/OEIS*, advanced public notification of Air Force activities could minimize delays to commercial fishing and shipping fleets by allowing users to schedule their activities accordingly to avoid Air Force training activities.

3.11.12.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during air-to-air missile exercises in the GOA TMAA during up to two joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the *GOA EIS/OEIS* ROD (Navy 2011).

3.11.12.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.11.13 Subsistence (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13. The proposed missile live fire would take place within the existing TMAA used by the Navy for large surface exercises, including live fire. This area is off shore within the GOA and does not come under either Federal or State subsistence regulations. While Alaska Natives are exempt from the MMPA and are permitted to engage in subsistence harvesting of protected species such as whales, sea otters, and halibut, according to the recently completed *GOA EIS/OEIS* (Navy 2011), subsistence activities do not take place within the TMAA. Therefore, subsistence resources are not further analyzed for this programmatic proposal.

3.11.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.11.14.1 Affected Environment

The affected environment for the Missile Live-Fire for AIM-9 and AIM-120 in the Gulf of Alaska proposal includes the existing TMAA and W-612 in the GOA, situated south of Prince William Sound and East of Kodiak Island. As such, a characterization of populations groups living in the TMAA is not applicable. However, impacts on human populations, for example, effects on commercial or recreational fishing and subsistence use, would be part of the environmental consequences analysis, to determine effects on users.

3.11.14.2 Impact Assessment Methodology

General Methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#) and additional methodology relevant to the six Programmatic Proposals is described in Section [3.7.14.2](#).

3.11.14.3 Environmental Consequences

3.11.14.3.1 Proposed Action

The affected area is located beneath W-612 and the TMAA. These areas are both located entirely over the GOA and are no closer than 12 NM from the shoreline. Human activity in these areas is rare, consisting primarily of military training exercises and commercial endeavors such as fishing and shipping.

Based on a review of environmental consequences for other resources, adverse impacts could, in many cases, be reduced based on siting and operational criteria, SOPs, BMPs, and continuation of mitigation measures used previously; however, further study would be needed.

As described in Section [3.11.14](#), subsistence activities are not conducted within the TMAA; however, criteria and measures listed for subsistence activities would also apply for environmental justice. Military activities should be evaluated to determine if they affect marine wildlife typically harvested in other areas by Alaska Natives. If the proposed live-fire activities have the potential to affect the population or distribution of marine wildlife, additional analysis and consideration should be conducted for Alaska Natives who are dependent on harvesting marine species for subsistence. Additional siting criteria or measures are recommended for environmental justice.

The information presented below could benefit siting and operations planning by taking into account the location of jurisdictions with greater potential for environmental justice effects:

- If tiered environmental analysis identifies unmitigated impacts in the ROI, evaluate whether human populations would be affected, and if so, whether they have higher percentages of minority and low-income populations than the surrounding area. If so, additional mitigation measures may need to be evaluated to reduce potential disproportionately high and adverse environmental or health effects.
- If adverse impacts on traditional cultural resources or Alaska Native activities are identified, develop case-specific mitigations to reduce potential disproportionately high and adverse environmental or health effects on Alaska Natives.

3.11.14.3.2 No Action

Under the No Action Alternative, 24 AIM-9 Sidewinder missiles and 18 AIM-120 AMRAAM missiles would be expended annually during air-to-air missile exercises in the GOA TMAA during up to two joint training exercises that could occur for up to 21 days each and take place between April and October. This reflects the Preferred Alternative implemented by the Navy in the *GOA EIS/OEIS* ROD (Navy 2011).

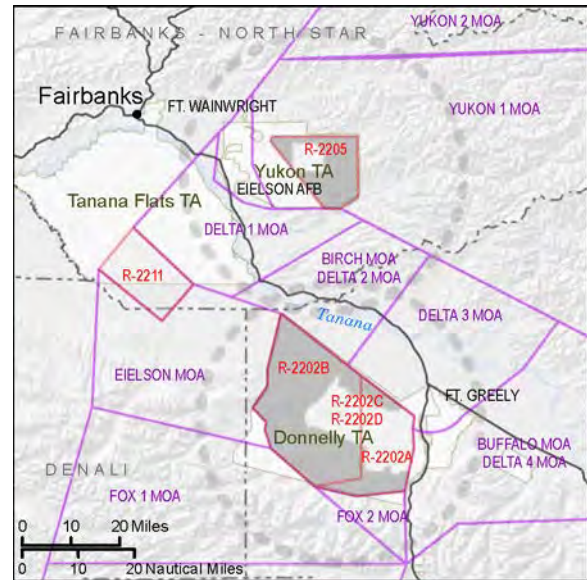
3.11.14.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.11.14.3.1](#).

3.12 JOINT PRECISION AIRDROP SYSTEM DROP ZONES (PROGRAMMATIC)

The JPADS is a system of GPS receivers and steerable parachutes that are revolutionizing the way the military executes aerial resupply. JPADS are dropped from large cargo aircraft such as the C-17 Globemaster and fall into dangerous or remote landing zones to resupply ground troops.

The JPADS proposal considers two potential locations for this expanded capability within the existing restricted areas of DTA or YTA. The composite footprint depicted on the map is about 3.3 million acres (almost 5,100 square miles), with each location centered within existing military restricted area. (Refer to the gray-shaded area in the map to the right.) However, because of the large zone exposed to potential surface hazards for this capability, the potential footprint is much larger than existing training areas, and could extend into non-military land. The initial impact screening assessment rated the potential for significant impacts as low for air quality and infrastructure and transportation.



3.12.1 Airspace Management and Use (No Analysis Needed)

The airspace in which JPADS activities would occur are within existing restricted areas to be activated for these operations. Therefore, any effects on airspace management and other uses would be the same as those that currently exist in those areas and the surrounding region. No further discussion or analysis is required.

3.12.2 Noise

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.2.

3.12.2.1 Affected Environment

The affected area could be anywhere in the JPARC complex. Noise sources include military training, civilian transportation and other noises, and natural sounds. Noise levels are typically low except during military training events.

3.12.2.2 Impact Assessment Methodology

Noise levels of the JPADS are considered relative to baseline conditions. Noise impacts are discussed qualitatively.

3.12.2.3 Environmental Consequences

3.12.2.3.1 Proposed Action

The JPADS would not be expected to be audible except on touchdown. Noise resulting from touchdown would be minimal and limited to the immediate vicinity of the touchdown site. Noise impacts resulting from implementation of the action alternative would be minimal.

3.12.2.3.2 No Action

Under the No Action Alternative, JPADS training would not occur. There would be no noise impacts under the No Action Alternative.

3.12.2.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.12.3 Safety

3.12.3.1 Affected Environment

FLIGHT SAFETY

This proposal does not require any new or modified airspace actions to accommodate the JPADS flight training activities, as this training would occur within the existing or proposed SUA. This proposed new activity would also not present any additional flight safety risks or considerations beyond those previously discussed for the other current airspace uses. Therefore, flight safety is not addressed any further for this proposal.

GROUND SAFETY

Because this alternative only involves air dropping of steerable parachute, only potential issues associated with range safety and public access control would apply. Current procedures associated with these issues are already described in Section [3.2.3.1](#).

3.12.3.2 Impact Assessment Methodology

The impact assessment methodology is the same as that described in Section [3.2.3.2](#).

3.12.3.3 Environmental Consequences

3.12.3.3.1 Proposed Action

GROUND SAFETY

Under this Alternative, no impacts on public health and safety would occur.

3.12.3.3.2 No Action

FLIGHT SAFETY

Not applicable.

GROUND SAFETY

Under the No Action Alternative, JPADS operations would not occur and thus, no impacts on public health and safety would occur.

3.12.3.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.12.4 Air Quality

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.

3.12.4.1 Affected Environment

The proposed JPADS drop locations are located in FNSB and Southeast Fairbanks Census Area. The drop location close to Fort Wainwright that is proposed under Alternative A is within the PM_{2.5} nonattainment and carbon monoxide maintenance areas of FNSB. All other proposed drop locations are in attainment areas. Table B-12 in Appendix B, Section B.4.3 provides a summary of the estimated 2008 annual emissions for the affected borough and census area.

3.12.4.2 Impact Assessment Methodology

Currently, this action is in its developmental stages and sufficient data is not available to analyze air quality impacts. Once sufficient data is available, the air quality analysis will estimate the emissions that would occur from JPADS delivery and recovery operations. There are no construction activities associated with this proposed action. The analysis will generally follow the methodology described in Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.4.5.

PSD CLASS I AREA IMPACT ANALYSIS

The closest PSD Class I area to the JPADS operations area is Denali National Park, which is approximately 45 miles from the closest proposed drop location. Therefore, due to the proximity of the proposed action to a pristine PSD Class I area, the potential for proposed activities to affect visibility within this area will need to be analyzed.

3.12.4.3 Environmental Consequences

3.12.4.3.1 Proposed Action

There are no construction activities associated with the JPADS action. Air quality impacts from operational activities of the proposed JPADS action would occur from (1) combustive emissions due to the use of fossil-fuel-powered equipment and aircraft, and (2) fugitive dust emissions (PM₁₀ and PM_{2.5}) due to the operation of equipment on exposed soil.

Operational information needed to calculate the air emissions resulting from increased activities associated with the JPADS action includes the following:

- The type, horsepower, and daily and annual usage rates of fossil-fuel-powered equipment associated with increased training activities for the proposed action
- Sortie information, including the types of aircraft and their engines, durations in the affected area, and altitude distributions

The emissions factors needed to derive construction source emission rates are found in *Compilation of Air Pollution Emission Factors* (EPA 1995); emissions inventory data produced by the mathematical models OFFROAD2007 for off-road construction equipment (ARB 2006-1) and EMFAC2007 for on-road vehicles (ARB 2006-2); and *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEE 2009).

3.12.4.3.2 No Action

Air quality impacts under the No Action Alternative would not differ from air quality impacts generated under existing operations in YTA and DTA. Therefore, the No Action Alternative would not result in any new air quality impacts.

3.12.4.4 Considerations for Future Planning

There are no recommended measures identified for this resource based on preliminary project parameters.

3.12.5 Physical Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.5. Given that the proposed action involves minimal to no disturbance of any land surface, no beneficial or adverse impacts of this action on physical resources within the study area are expected to occur; therefore, it is not further analyzed for this programmatic proposal.

3.12.6 Water Resources (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.6. The proposed action involves minimal to no disturbance of any surface water. Errant drops of equipment would require recovery. This may involve ground vehicles. Recovery operations would follow existing guidelines (Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*) to minimize impacts of training on wetlands and surface water resources. Therefore this action is expected to have negligible or no impacts on water resources within the study area and is not further analyzed.

3.12.7 Hazardous Materials and Waste (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.7. No hazardous materials and waste impact analysis was conducted for this proposed action, as this action involves the JPADS, which is a system of GPS receivers and steerable parachutes to support aerial resupply training under varied, realistic conditions. There would be no impacts regarding the creation, dispersion, management, handling, or disposal of hazardous materials or waste in the proposed JPADS training exercises. This resource is not further analyzed for this programmatic proposal.

3.12.8 Biological Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.8.

3.12.8.1 Affected Environment

As for the other programmatic projects, study areas for the JPADS proposed project are large and based upon entire training areas (DTA and YTA). The biological resources that likely occur in the proposed project study locations are described in detail in Section [3.3.8](#) (DTA), Section [3.8.8](#) (TFTA), and in Sections [3.7.8](#) (DTA, YTA, and TFTA).

Major land types that occur within the JPADS study areas are presented in [Table 3-103](#).

Known important wildlife species habitat areas that occur within the JPADS study areas are presented in [Table 3-104](#).

3.12.8.2 Impact Assessment Methodology

The general methodology for evaluating biological resources is described in Section [3.1.8.2](#).

3.12.8.3 Environmental Consequences

3.12.8.3.1 Proposed Action

A similar programmatic analysis of overall presence of sensitive biological resources on YTA and DTA was conducted for EGMS (Section [3.7.8](#)) and for JAGIC (Section [3.9.8](#)). JPADS training would involve minimal ground disturbance, however, DZs should be selected with consideration of seasonal biological resources and sensitive habitats constraints.

To reduce adverse effects, recommended siting criteria include minimizing construction in the following known sensitive habitats that occur within the JPADS study areas (different avoidance seasons apply; see the biological resources mitigations table in Appendix G, *Biological Resources*, and Figures B-11, B-13, and B-14 in Appendix B, *Definition of the Resources and Regulatory Settings*):

- Bogs and other wet habitats
- Moose calving, rut, and winter habitats
- Caribou calving, rut, and winter habitats and migration routes
- Dall sheep winter habitat and migration routes
- Waterfowl general, migration stopover/resting, and nesting areas
- Brown bear seasonal habitat and fish streams
- Sensitive bison habitat

Table 3-103. Land Types Associated with the Joint Precision Airdrop System Project

Study Area	Spruce and Broadleaf Forest	Open and Closed Spruce Forest	Spruce Woodland/ Shrub	Open Spruce and Closed Mixed Forest Mosaic	Open Spruce Forest/ Shrub/Bog Mosaic	Closed Spruce Forest	Gravel Bars	Alpine Tundra and Barrens	Dwarf Shrub Tundra	Tall and Low Shrub	Tall Shrub	Glaciers and Snow
	Acres (hectares)											
DTA	62,837 (25,429)	220,914 (89,401)	56,645 (22,923)	18,179 (7,357)	163,022 (65,973)	0	50,284 (20,349)	4,188 (1,695)	6,172 (2,498)	43,026 (17,412)	5,770 (2,335)	247 (100)
YTA	142,364 (57,613)	27,971 (11,319)	16,680 (6,750)	548 (222)	36,710 (14,856)	1,481 (600)	0	0	0	3,889 (1,574)	27,640 (11,186)	0

Key: DTA=Donnelly Training Area; YTA=Yukon Training Area.

Source: USGS 1991.

Table 3-104. Wildlife Habitats Associated with the Joint Precision Airdrop System Project

Study Area	Moose Winter Habitat	Moose Rutting/Calving Habitat	Caribou Winter Habitat	Caribou Calving Habitat	Waterfowl General Habitat	Dall Sheep Winter Habitat
	Acres (hectares)					
DTA	523,601 (211,894)	361,113 (146,137)	509,351 (206,127)	404,398 (163,654)	284,015 (114,937)	11,155 (4,514)
YTA	82,366 (33,332)	82,366 (33,332)	20,325 (8,225)	0	14,424 (5,837)	0

Key: DTA=Donnelly Training Area; YTA=Yukon Training Area.

Source: RDI 2005-1, 2005-2, 2005-3, 2005-4, 2005-5, 2005-6.

It will be important to work with ADFG and USFWS personnel early in the design phases to site new JPADS DZs in order to minimize damage and disturbance to biological resources. Indirect impacts that include allowing additional human access into areas or during seasons where it hasn't occurred in the past can be especially disruptive to wildlife during sensitive life stages such as winter, breeding, nesting, and calving/lambing. The biological resources mitigations table in Appendix G, *Biological Resources*, includes established and proposed mitigation measures that, when applied, reduce impacts on wildlife during important seasonal activities. Temporary impacts from vegetation-clearing or trampling, the addition of noise, dust, trash, weed spread, and other hazards such as potential spills may occur. Standard BMPs and SOPs also account for reducing these types of effects (Appendix G).

Given the application of environmental considerations in siting DZs, the anticipated nature of project impacts, impacts on biological resources would be adverse but not significant.

3.12.8.3.2 No Action

The current amount of localized ground disturbance (from training, vehicles and live fire) would be expected to continue and wildlife using the area would be expected to remain active in occupied habitats.

3.12.8.4 Considerations for Future Planning

In addition to siting criteria and vegetation clearing guidelines listed in Section [3.7.8.3](#), other measures, BMPs, and SOPs that should be applied to ground-disturbing activities are included in Appendix G, *Biological Resources*.

3.12.9 Cultural Resources

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.9.

3.12.9.1 Affected Environment

The ROI for JPADS Alternative A consists of that portion of YTA as well as the airspace of R-2205 above YTA where the JPADS operations would be conducted. The ROI for JPADS Alternative B consists of that portion of DTA as well as the airspace of R-2202 above DTA where the JPADS operations would be conducted. The DTA portion of the JPADS affected environment is the same as described in Section [3.2.9.1](#), Realistic Live Ordnance Delivery. The YTA portion of the JPADS affected environment is the same as described in Section [3.4.9.1](#), Expand Restricted Area R-2205.

3.12.9.2 Impact Assessment Methodology

The methodology used for the analysis of potential impacts on cultural resources for the proposed JPADS DZs action is the same as the methodology used for the analysis of the RLOD action (Section [3.2.9.2](#)).

3.12.9.3 Environmental Consequences

3.12.9.3.1 Proposed Action

This proposed action is the establishment of JPADS DZs in R-2205 and R-2202.

There is the potential for impacts on cultural resources from the establishment of JPADS in R-2205 and R-2202. Prior to implementation of any element of this proposed action, the Army would comply with NHPA, Section 106 including identification of historic properties, and assessment and resolution of

adverse effects through consultation with Alaska SHPO and potentially affected Federally recognized tribes.

There is the potential for impacts on traditional cultural resources or Alaska Native activities from the establishment of JPADS in R-2205 and R-2202. Although no traditional cultural properties have been specifically identified in the ROI, this does not mean that none are present. In compliance with DoD Instruction 4710.02 (DoD 2006) and the DoD American Indian and Alaska Native Policy (DoD 1998), ALCOM has initiated government-to-government consultation with potentially affected Federally recognized tribes, regarding their concerns about potential impacts on Tribal rights, Tribal resources, or Indian land under the proposed establishment of JPADS in R-2205 and R-2202 (see Section [1.6.5](#)). Consultation will continue as the proposal progresses toward a definitive action.

3.12.9.3.2 No Action

Under the No Action Alternative there would be no establishment of JPADS in R-2205 and R-2202. Existing use of the ranges and airspace would continue under this alternative and resources would continue to be managed in compliance with Federal law and Army regulations.

3.12.9.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.12.9.3.1](#).

3.12.10 Land Use

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.10.

3.12.10.1 Affected Environment

LAND STATUS, MANAGEMENT AND USE

Full JPADS capability would require a surface area of almost 1.7 million acres (based on a hypothetical maximum 25-mile-radius area of operations). Whether sited on DTA or YTA, this configuration would include military land, other Federal lands, State and private land, with the majority being outside of installation boundaries. Based on the general characteristics of land surrounding these training areas, only about 1 percent is likely to be private (including Native-owned) land. [Figure 3-42](#) shows the general land status in the region of potential interest for this proposal.

Land Management and Use

The military areas (YTA and DTA) are managed and planned according to current INRMPs, with supporting direction from the RTLP and RDP. Further description of military uses on the proposal areas is provided in Sections [3.2.10.1](#) (for DTA) and [3.4.10.1](#) (for YTA).

ADNR is the primary land resource manager of State lands in the proposal area. ADNR's ETAP is under development. The proposal area also includes lands within the FNSB, with the Regional Comprehensive Plan and the FNSB JLUS providing a framework for future development and compatible uses. Lands in surrounding areas fall under the management of several jurisdictions and agencies with applicable land management plans.

Potential special use areas in preliminary JPADS proposal areas are listed in [Table 3-105](#), and the locations are shown in [Figure 3-42](#). Descriptions of these areas are provided in Appendix I, *Land Use, Access, and Recreation*. Hunting and fishing are predominant public activities in the non-military areas for personal, commercial, and subsistence purposes. The ADFG manages the Delta CUA where motorized access for hunting is seasonally restricted.

RESOURCE AND PRODUCTIVE USE

Portions of the JPADS proposal area overlies non-military land with a range of passive and productive uses. Federal and State land managers prioritize the use of lands based on resources, attributes, and local values. In the proposal area, most State-managed land is classified for its habitat value, with recreation being a closely associated use. [Figure 3-42](#) illustrates the primary land status and important uses and features of the proposal area including areas with potential for energy development.

Table 3-105. Special Use Areas – Joint Precision Airdrop System Programmatic Proposal Area and Surrounding Vicinity

Special Use Area	Designation
Tanana Valley State Forest	State Forest
Delta Junction State Range	State Range Area (Bison Range Area)
Chena River State Recreation Area	State Recreation Area
Birch Lake State Recreation Site	State Recreation Site
Harding Lake State Recreation Area	State Recreation Site
Quartz Lake State Recreation Site	State Recreation Site
Salcha River State Recreation Site	State Recreation Site
Big Delta State Historical Park	State Historical Site
Clearwater State Recreation Site	State Recreation Site
Big Lake State Recreation Site	State Recreation Site
Delta State Recreation Site	State Recreation Site
Donnelly Creek State Recreation Site	State Recreation Site

Source: ADNR 2011-3.

PRIVATE AND NATIVE LANDS

Private parcels and residential lands within the Proposal area account for about 1 percent of the preliminary Proposal area. Private landowners may also have ownership interest in subsurface resources. Further discussion of Native-owned lands and resources is provided in Section [3.12.13.2](#), Subsistence.

LOCATIONS OF INTEREST

Special use areas within the proposal area include Chena River State Recreation Area, on the northeast side of YTA, and the Delta River Bison Range, located to the east of DTA. Several CDPs (with concentrated populations) are located within the proposal area including Delta Junction, Harding Lake, Salcha, Big Delta, and Fort Greely.

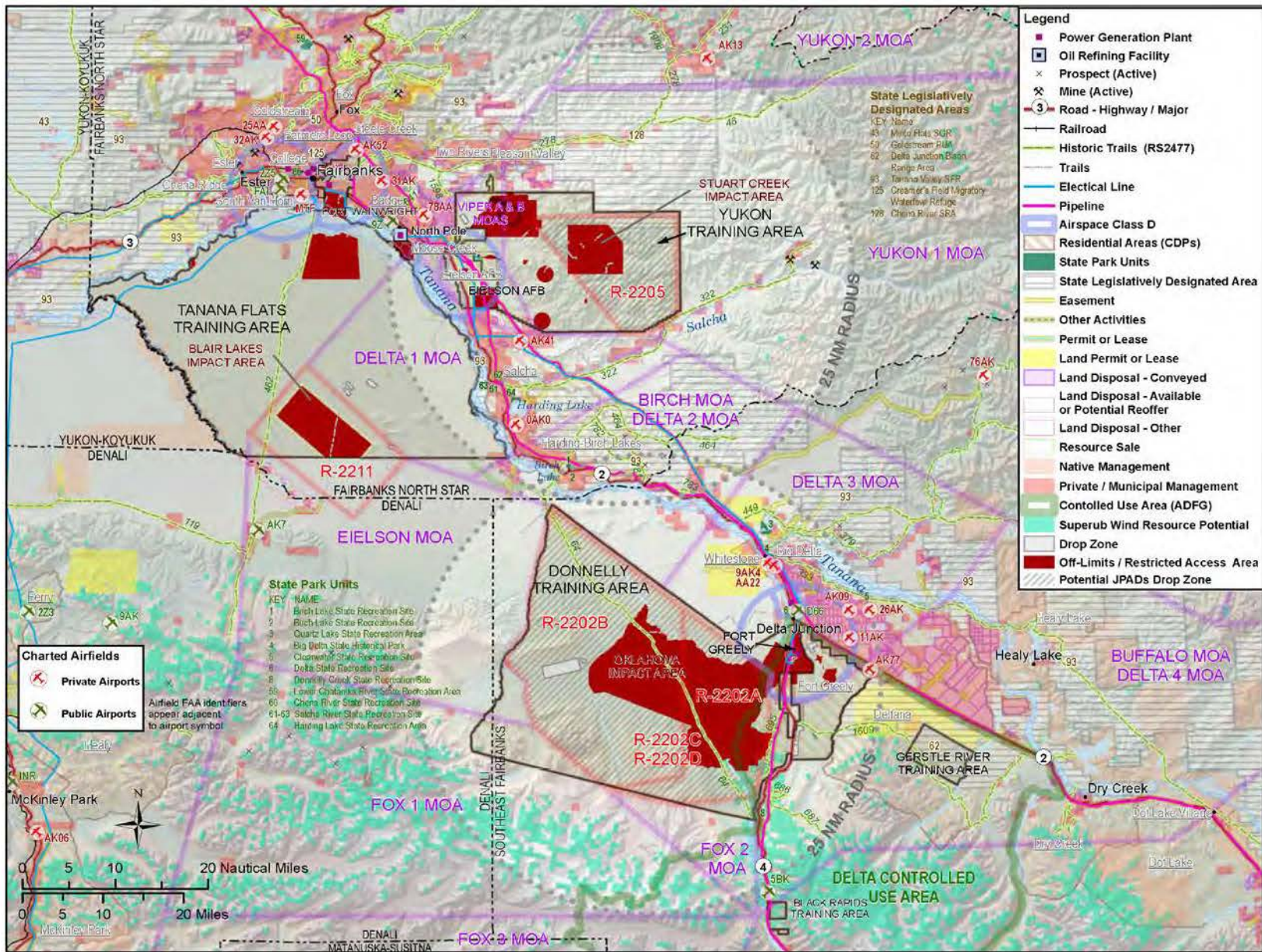


Figure 3-42. General Land Status, Special Use Areas and Productive Uses in the Joint Precision Airdrop System Proposal Area and Surrounding Vicinity

Source: ADNR 2009-1, ADNR 2009-2, ADNR 2009-3, ADNR 2009-4, ADNR 2011-2, ADNR 2011-3, ADNR 2011-4, ADNR 2011-7, AWS TrueWind/NREL 2003, FNSB 2006, NGA no date, SAIC 2011-1, SAIC 2011-3, USCB 2010-1, USGS 2005-1, USGS 2005-2

PUBLIC ACCESS

Land Access

Access and use to military lands under consideration for the JPADS proposal are described above in Sections [3.2.10.1](#), [3.3.10.1](#), and [3.4.10.1](#).

The trails, including RS 2477 designated routes, within the ROI for this proposed action and alternatives are listed in [Table 3-106](#).

Aerial Access

Public aerial access to DTA and YTA is described in Sections [3.2.10.1](#), [3.3.10.1](#), and [3.4.10.1](#). [Figure 3-42](#) shows the locations of public and private airports in the ROI.

Navigable and Public Waters

Portions of the Tanana and Wood River in the ROI are categorized as navigable.

RECREATION

Recreation on Military Land

Public access and recreational use in the proposal area is described in Sections [3.2.10.1](#) (for DTA) and [3.4.10.1](#) (for YTA).

Recreation on Non-military Land

There are no Federally designated recreation lands within the ROI of the proposed action. Three State designated recreation lands, Tanana Valley State Forest, Chena River State Recreation Area, and Delta Junction State Range are located partially within the ROI for this proposed action ([Table 3-106](#)). Several state recreational areas are located in the corridor between Fairbanks and Delta Junction. Appendix I, *Land Use, Access, and Recreation* provides descriptions of those in the JPADS proposal area.

3.12.10.2 Impact Assessment Methodology

General methodology pertaining to evaluating land use, public access and recreation are described in Section [3.1.10.2](#).

PROPOSAL-SPECIFIC METHODOLOGY

The primary sources of impact on land use, including public access and recreation, from this proposal include:

- Effects of military overflights on underlying uses and activities (primarily from aircraft noise) as described in Section [3.1.10.2](#).
- Indirect effects of limited civilian air access on land use and recreation as described in Section [3.1.10.2](#).
- Effects of dispensing hazardous payloads on land uses, private and public access, and recreation as described in Section [3.3.10.2](#).

For this programmatic proposal, proposed siting criteria are the basis for assessment. Where these are not specified or are not developed, the investigation identifies measures and siting criteria that would reduce conflicts with land use, access, and recreation, particularly with regard to non-military lands.

Table 3-106. Public Access Trails in the Joint Precision Airdrop System Proposal Area of Influence

Public Access	Designation	Length (miles)
Chena Hot Springs-East Fork (Van Curlers)	RST 2477/ RST 46	16.3
Chena Hot Springs - Olympia Creek Trail	RST 2477/ RST 1908	0.3
Chena Lakes Trail	RST 2477/ RST 1598	4.7
Chena Lowlands Winter Trail Connections	RST 2477/ RST 641	2.6
Donnelly Dome: Old Valdez Trail Segment	RST 2477/ RST 695	13.1
Donnelly-Washburn	RST 2477/ RST 64	55.0
Fairbanks - Chena Hot Springs	RST 2477/ RST 278	44.1
Goodpaster River Trail	RST 2477/ RST 449	13.3
Jarvis Creek Trail	RST 2477/ RST 687	9.9
North Fork of Fortymile-Big Delta	RST 2477/ RST 379	9.3
Ober Creek Trail	RST 2477/ RST 686	6.4
Redmond Creek - Banner Creek Trail	RST 2477/ RST 782	10.6
Richardson Highway (Birch Lake) - Caribou Creek Trail	RST 2477/ RST 464	31.4
Richardson Highway-Gerstle River	RST 2477/ RST 1609	12.0
Richardson Telegraph Station - Ridge (Banner Creek)	RST 2477/ RST 781	7.2
Salcha-Caribou Sled Road	RST 2477/ RST 322	50.2
Shaw Creek Lodge - Tenderfoot Creek Trail	RST 2477/ RST 783	4.0
Tanana Crossing-Grundler Trail	RST 2477/ RST 333	14.0
Wrong Way Lane (Harding Lake Trail)	RST 2477/ RST 20	2.2

Source: ADNR 2009-2

3.12.10.3 Environmental Consequences

3.12.10.3.1 Proposed Action

The JPADS proposal would establish DZs for JPADS payloads on military land underlying restricted airspace. It would not involve construction of permanent facilities outside of military land. JPADS events would activate an extensive SDZ. JPADS missions would occur intermittently, generally as part of MFEs, during six periods each year (usually for periods of 14 days each). JPADS events would exclude public access and use to all land within activated SDZs. This could include the entire training area (YTA or DTA). Public access would also be restricted in any areas outside of military land that fall within the SDZ. Excluding access to military land would be inconvenient, particularly affecting recreational activity (hunting) and subsistence uses. Excluding access to non-military land would have a similar effect, but would also preclude access to private land, and to State-owned land for a spectrum of public uses (including commercial activities and resource harvesting and production). For the duration of the drop event, use of roads and trails within the SDZ would also be suspended. The duration of these exclusions could have minor to substantial effects on land use, access, and recreation, and could in some cases make it infeasible to pursue certain uses and resource opportunities. This could result in significant impacts on land use and ownership interests, access and recreation within any future proposal areas. In formulating future proposals, incorporating the process, siting criteria, and recommended parameters below, could reduce potential impacts on land use, access, and recreation.

- Develop and apply a comprehensive set of siting and operational criteria to compare potential sites. For operationally suitable sites, identify all potentially sensitive assets or resources,

protected or unavailable land (for example, areas with UXO, non-military ownership, noise sensitive, developed site) using GIS overlays.

- Prioritize preferred sites for preliminary review with local jurisdictions and regulatory agencies. Preliminary agencies to include are ADNR, USACE, USFWS, ADFG, local borough, Native village, or community planners.
- Coordinate with local jurisdictions and regulatory agencies early in the siting process to review siting criteria and to share updated information on related to siting criteria. Particularly for non-military land within SDZs, use the coordination process to obtain detailed and up-to-date information on land status and subsurface ownership, encumbrance and interests in the lands held by other parties (including minerals and energy resources), existing rights-of-way, easements, leases, and permits. To the extent possible, avoid land with any conflicting interests. Discuss options and mechanisms for acquiring access easements with landowners/managers. Discuss options for temporary evacuation areas and methods for implementing them.
- To the extent possible, access should be maintained for public recreational use, hunting and other subsistence uses on the installation in the locations where these activities are most frequent or important. Patterns of use taken from current and past USARTRAK data can provide information for this screening criteria, as well as input from ADFG. Scheduling JPADS events outside of popular hunting areas and seasons would reduce potential impacts. Strategies to achieve this criteria also include rotating or selecting areas for training that have lower value or less overlap with public uses and hunting.
- If land acquisition is proposed, prepare a detailed real estate study to fully identify and evaluate surface and subsurface interests in the affected parcels.
- For options involving easements and intermittent/temporary use, fully explore the frequency of JPADS missions and potential for consolidating missions into fewer periods each year. Evaluate concepts of closure zones (restricted access) which correspond to size and frequency. For example, the largest SDZ may only be activated once per year, with smaller zones identified for more frequent use. Configure DZs and SDZs so that high use SDZs are contained within existing military land and restricted airspace.
- If possible, schedule missions at times other than those that are popular for outdoor activities (for hunting, guided wilderness trips, recreation, subsistence harvesting).
- For non-military land within SDZs, avoid land in or near special use areas (such as Tanana Valley State Forest, Chena State Recreation Area), communities or homesteads, important wildlife habitat, areas used for wildlife calving, rutting, or migration, popular recreational and hunting areas (including cabins and shelters), active mines and energy resource sites, commercial areas, hospitals, and schools.
- Design SDZs to avoid major highways, railroad corridors, population centers, and important public roads and trails.
- Identify plans and procedures for retrieving payloads, particularly when they fall outside of military land.
- Create a public involvement program early in the process. Involve potentially affected parties in negotiations about compensation for loss of access and use of private interests.
- Include a Safety and Emergency Access plan in the project proposal if public transportation networks and airfields would experience temporary loss of service, potentially affecting local communities.

- Negotiate agreements with potentially affected landowners (ADNR or private owners) for intermittent use and evacuation (if required) of affected lands commensurate with the frequency and duration of evacuation.
- Define safety procedures and measures for these JPADS activities, including maximum events per year, advance notification, and preplanning activities.
- Minimize the duration of evacuation periods of non-military areas and avoid block scheduling more time than is needed for the hazardous event.

The following existing BMP would continue for future proposals to reduce the potential for significant impacts on land use, access, and recreation.

- Continued implementation of the USARTRAK automated check-in phone system. This would provide information regarding daily closures and should greatly simplify the public access process.

3.12.10.3.2 No Action

There would be no change, and therefore no impact on surface uses and activities under the No Action Alternative.

3.12.10.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.12.10.3.1](#).

3.12.11 Infrastructure and Transportation (No Analysis Needed)

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.11. This proposed action involves minimal to no disturbance of any infrastructure or transportation assets; therefore, it is not further analyzed for this programmatic proposal.

3.12.12 Socioeconomics

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.12.

3.12.12.1 Affected Environment

The ROI for the JPADS proposed action is the Denali Borough, FNSB, and the Southeast Fairbanks Census Area. General socioeconomic information for these areas is similar to that for the area described for the RLOD proposal in Section [3.2.12.1](#), Affected Environment, with the exception of the population under the airspace.

3.12.12.2 Impact Assessment Methodology

The general methodology for evaluating socioeconomics is described in Section [3.1.12.2](#).

3.12.12.3 Environmental Consequences

3.12.12.3.1 Proposed Action

Depending on the location of the JPADS, there is potential for significant impacts on socioeconomic resources due to the large zone exposed to potential surface hazards that could extend into non-military land. In order to minimize potential impacts to socioeconomic resources, the selection of a JPADS site should avoid creating a surface hazard zone that overlaps population centers, residential areas, schools, and major economic centers. Safety measures and requirements for this action should be defined and incorporated into the siting criteria and planning process. Additional siting criteria and recommended parameters as defined in Section [3.12.10.3.1](#) could also reduce potential impacts to socioeconomic resources. Additional analysis is required to determine socioeconomic resource impacts, once siting of the JPADS has been further developed.

3.12.12.3.2 No Action

Under the No Action Alternative, socioeconomic resources would remain as described under baseline conditions.

3.12.12.4 Considerations for Future Planning

Any applicable existing mitigations, BMPs, and SOPs should be included in the pre-planning and definition of this future action. There are no additional recommended measures identified for this resource based on preliminary project parameters.

3.12.13 Subsistence

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.13.

3.12.13.1 Affected Environment

The ROI and the affected environment for subsistence resources below and in the vicinity of R-2202 and R-2205 are described in Section [3.2.13.1](#). More-detailed information on species and habitats in the ROI is provided in Section [3.12.8](#), Biological Resources.

3.12.13.2 Impact Assessment Methodology

The general methodology pertaining to evaluating subsistence is described in Section [3.8.13.2](#).

3.12.13.3 Environmental Consequences

3.12.13.3.1 Proposed Action

In order to minimize any potential impacts on subsistence resources, the selection of a JPADS site should consider whether and how often the operation of JPADS would restrict public access. A substantial restriction of access to an area currently accessible to the public may impact the ability of Alaska residents to participate in subsistence activities.

3.12.13.3.2 No Action

Under the No Action Alternative, subsistence activities would continue as they are currently practiced.

3.12.13.4 Considerations for Future Planning

This resource is not affected by this alternative. Considerations for future planning are not required.

3.12.14 Environmental Justice

Reference also Appendix B, *Definition of the Resources and Regulatory Settings*, Section B.14.

3.12.14.1 Affected Environment

The affected environment for the JPADS proposal is the same as described for the Realistic Live Ordnance Delivery proposal in Section [3.2.14.1](#), Affected Environment. [Table 3-39](#) presents total population, percent minority, percent low-income, percent Alaska Native, and percent children for areas comprising the proposal area.

3.12.14.2 Impact Assessment Methodology

The general methodology pertaining to evaluating Environmental Justice is described in Section [3.1.14.2](#) and additional methodology relevant to the six Programmatic Proposals is described in Section [3.7.14.2](#).

3.12.14.3 Environmental Consequences

3.12.14.3.1 Proposed Action

The JPADS proposal considers two potential locations for this expanded capability within the existing restricted areas of DTA or YTA. The JPADS DZs require restricted areas or warning areas to contain the JPADS safety area, which can be up to a 25-mile radius for drops of 40,000 pounds at FL250. Because of the large zone exposed to surface hazards for this capability, the potential footprint is much larger than existing training areas, and could extend into non-military land. Based on a review of environmental consequences for other resources, adverse impacts could, in many cases, be reduced based on siting and operational criteria, SOPs, BMPs, and continuation of mitigation measures similar to those used previously; however, further study would be needed. Impacts on socioeconomic resources could be potentially significant (Section [3.12.12.3](#)) because of the proximity of populated areas. Examples of measures to reduce impacts on socioeconomic resources include expansion of public notification of imminent convoy activity and publishing MFE information early.

Siting and operational criteria listed for land use, cultural resources and subsistence also would benefit minority and low-income populations.

For example, in order to minimize any potential impacts on subsistence resources, the selection of a JPADS site should consider whether the operation of JPADS would restrict public access and the frequency of any restrictions. A substantial restriction of an area currently accessible to the public may impact the ability of Alaska residents to participate in subsistence activities.

The information presented below could benefit siting and operations planning by taking into account the location of jurisdictions with greater potential for environmental justice effects:

- If tiered environmental analysis identifies unmitigated impacts in the ROI, evaluate whether any inhabited non-military areas would be affected and if so, whether they have higher percentages of minority and low-income populations than the surrounding borough. If so, additional mitigation measures may need to be evaluated.

- If adverse impacts on traditional cultural resources or Alaska Native activities are identified, develop case-specific mitigations to reduce potential disproportionately high and adverse environmental or health effects on Alaska Natives.

3.12.14.3.2 No Action

The JPADS would not be implemented and current uses would continue.

3.12.14.4 Considerations for Future Planning

Based on preliminary project parameters and findings for other projects that are similar in scope, recommended pre-planning activities, siting criteria, and measures to incorporate into future proposals are provided above in Section [3.12.14.3.1](#).

Chapter 4

Cumulative Impacts and Secondary Effects

4.0 CUMULATIVE IMPACTS AND SECONDARY EFFECTS

4.1 CUMULATIVE IMPACT ANALYSIS PRINCIPLES

The approach taken to analyze cumulative effects for the *Environmental Impact Statement for the Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska (JPARC Modernization and Enhancement EIS)* meets the objectives of the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) regulations, and CEQ guidance. CEQ regulations (40 [Code of Federal Regulations] CFR 1500–1508) provide the implementing procedures for NEPA. The regulations define cumulative effects as follows:

... the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.7).

Interactive effects may be either countervailing—the net cumulative effect is less than the sum of the individual effects—or synergistic—the net cumulative effect is greater than the sum of the individual effects. The CEQ handbook for considering cumulative effects advises that focusing the cumulative effects analysis on meaningful cumulative impact issues, rather than on all conceivable impact relationships, is critical to the success of the analysis in supporting better decisions about the proposed action and alternatives (CEQ 1997). The handbook also advises that cumulative effects be analyzed in terms of the specific resources, ecosystem, and human community that may be affected by the proposed action or alternatives. The analysis must consider how cumulative effects may be manifested over short and long timeframes, and how they may cause meaningful impacts extending into areas that may exceed political or administrative boundaries. Each affected resource, ecosystem, and human community must be analyzed in terms of its own capacity to accommodate additional effects, based on its own time and space parameters.

In 2005, CEQ released additional guidance regarding consideration of past actions and noted that it is not practical to analyze how the cumulative effects of an action interact with the universe. Instead, the analysis of environmental effects must focus on the aggregate effects of past, present, and reasonably foreseeable future actions that are truly meaningful. Furthermore, the scope of the cumulative impact analysis is related to the magnitude of the environmental impacts of the proposed actions.

Proposed actions of limited scope do not typically require as comprehensive an assessment of cumulative impacts as proposed actions that have significant environmental impacts over a large area (CEQ 2005).

For the proposals under consideration to have a cumulatively significant impact on an environmental resource, two conditions must be met. First, the combined impacts of all identified past, present, and reasonably foreseeable projects, activities, and processes on a resource, including the impacts of the proposed action, must be significant. Second, the proposed action must make a substantial contribution to that significant cumulative impact. Finally, if the impacts of the proposed action alone would have a significant impact on an environmental resource within its region of influence (ROI), then the impacts of the proposed action in combination with all other past, present, and reasonably foreseeable actions would normally be cumulatively significant.

4.2 CUMULATIVE IMPACT METHODOLOGY

The cumulative effects analysis for this Environmental Impact Statement (EIS) builds upon the findings of the cumulative effects of other sources used to prepare this EIS. The aggregate effects of implementing combinations of the 12 JPARC proposals are evaluated in this chapter. Also considered is the overall cumulative effect of implementing the EIS proposals within a wider context influenced by other actions (both military and non-military) in the ROI. This chapter provides a qualitative assessment of these interactions for each of the resource topics addressed in the EIS.

The following five projects listed below were developed as part of the *JPARC Master Plan* but did not meet the criteria for inclusion in the EIS proposals. These projects will be included only in the cumulative impacts analysis presented in this EIS. These projects are independently required and will be analyzed for decisions in separate NEPA analyses.

- Low-Altitude Tactical Navigation (LATN) Training (Air Force)
- Urban Target Set (Army)
- Additional Dry Targets (Air Force)
- High Angle Mountain Marksmanship Range (HAMMR) (Army)
- Helicopter Gunnery (Army)

The following projects will be analyzed for a decision in this document:

- Fox 3 Military Operations Area (MOA) Expansion/Paxon MOA Addition (Air Force)
- Realistic Live Ordnance Delivery (RLOD) (Air Force)
- Battle Area Complex (BAX) Restricted Area Addition (Army)
- R-2205 Expansion, including the Digital Multi-Purpose Training Range (DMPTR) (Army)
- Night Joint Training (NJT) (Air Force)
- Unmanned Aerial Vehicle (UAV) Access (Army)

The following six actions need additional planning or are preceded by independent actions and are being analyzed programmatically with as much detail as is available in this EIS:

- Enhancement of Ground Maneuver Space (EGMS) (Army)
- Tanana Flats Training Area (TFTA) Roadway Access (Army)
- Joint Air-Ground Integration Complex (JAGIC) (Army)
- Intermediate Staging Bases (ISB) (Army)
- Missile Live-Fire for AIM-9 and AIM-120 in the Gulf of Alaska (GOA) (Air Force)
- Joint Precision Airdrop System (JPADS) Drop Zones (DZs) (Air Force)

4.3 JPARC CUMULATIVE IMPACT GEOGRAPHIC BOUNDARY

Geographic boundaries for analyses of cumulative impacts can vary for different resources and environmental media. The geographic boundary for the majority of resources analyzed for cumulative impacts in the JPARC Modernization and Enhancement EIS are within, contiguous to, or near JPARC

land and air resources under the jurisdiction of, and managed by, the U.S. Department of Defense (DoD). One programmatic proposal, the Missile Live-Fire for AIM-9 and AIM-120, involves the GOA.

The boundaries of each resource study area for cumulative impacts may be broader than the boundaries used for analyzing the direct impacts of each proposal. As examples, for air quality the potentially affected air quality regions are the appropriate boundaries for assessment of cumulative impacts from releases of pollutants into the atmosphere. For wide-ranging or migratory wildlife, any impacts of the various proposed actions might combine with the impacts of other activities or processes within the ecological range of affected populations and ecosystems.

4.4 JPARC EIS COMBINED PROPOSAL IMPACTS

Decisions for this EIS may implement one or several of the EIS proposals and specific alternatives. In some cases, the decision may indicate a specific alternative for a proposal. In others, such as the UAV Access proposal, the decision may include one or more corridors (or none), depending on the outcomes of this EIS. [Table 4-1](#) indicates the full extent of overlap between the proposals, and provides a quick view of which airspace elements and geographic areas (on the ground/surface) could experience additive activity.

Establishing multiple JPARC capabilities may intensify some training activity in restricted airspace overlying military land and may increase munitions expenditures at existing impact areas. However, none of the actions represent an additive increase in training missions. The JPARC actions in this EIS would augment how, what, and where training takes place, but would serve the current authorized unit training and major flying exercise (MFE) requirements.

Table 4-1. JPARC EIS Proposals and Alternatives Geographic Overlap Matrix (Air or Ground or Both)

Proposed Action	Expanded Fox 3 MOA and New Paxon MOAs	RLOD	BAX Restricted Airspace Addition	R-2205 Expansion/DMPTR	Night Joint Training	UAV RA Access	TFTA Roadway Access	Enhanced Ground Maneuver Space	JAGIC	ISBs	Missile Live-Fire	JPADS
EIS Study Areas of Effect	Fox 3 MOA/ Paxon ATCAA	R-2202/ R-2211	BAX RA R-2202/ CFA	Yukon MOA/ R-2205/ YTA	Selected Alaska MOAs	Linkage between R-221, R-2202, R-2205	TFTA	DTA, YTA, TFTA	DTA, YTA, TFTA	DTA, YTA, TFTA	GOA	R-2205, R-2202 environs
Airspace Interactions												
R-2202		A	A		A	A			A			A
R-2205				A	A	A			A			A
R-2211		A			A	A			A			
Fox 3 MOA	A				A							
Paxon ATCAA	A				A							
Eielson MOA		A			A	A						
Birch MOA					A	A						
Delta MOA			A		A	A						
Buffalo MOA			A		A							
Viper MOA				A	A	A						
Yukon MOA				A	A	A		A				
Stony MOA	A				A							
GOA-TMAA											A	
GOA-W-612											A	
Fairbanks International Airport				A								
Class D airspace (Eielson AFB)				A		A						
CCT Controlled Firing Area (CFA)			A									

Table 4-1. JPARC EIS Proposals and Alternatives Geographic Overlap Matrix (Air or Ground or Both) (Continued)

Proposed Action	Expanded Fox 3 MOA and New Paxon MOAs	RLOD	BAX Restricted Airspace Addition	R-2205 Expansion/DMPTR	Night Joint Training	UAV RA Access	TFTA Roadway Access	Enhanced Ground Maneuver Space	JAGIC	ISBs	Missile Live-Fire	JPADS
EIS Study Areas of Effect	Fox 3 MOA/ Paxon ATCAA	R-2202/ R-2211	BAX RA R-2202/ CFA	Yukon MOA/ R-2205/ YTA	Selected Alaska MOAs	Linkage between R-221, R-2202, R-2205	TFTA	DTA, YTA, TFTA	DTA, YTA, TFTA	DTA, YTA, TFTA	GOA	R-2205, R-2202 environs
Ground Areas												
YTA				G	a/g	a		G	G	G		g
DTA-West		G/g			a/g	a		G	G	G		g
DTA-East			G		a	a				G		
TFTA		G/g			a	a	G	G	G	G		g
Fort Greely			a			a				G		g
Fort Wainwright						a						
Eielson AFB						a						
Fairbanks-Delta Junction corridor		a	a		a	a	G			G		g
Richardson Highway Corridor	a		a		a							g
Alaska Highway Corridor	a				a	a						
Glennallen Highway Corridor												
Parks Highway corridor					a							
Talkeetna Mountains	a				a							
Alaska Range	a				a							
Paxon/Tok/Dot area	a				a							
Upper Yukon					a							
Chena/Steese area					a				a			g
Upper Tanana Basin (east of Fairbanks)		a/g	a	a	a				a			g
Matsu Borough	a				a							

Table 4-1. JPARC EIS Proposals and Alternatives Geographic Overlap Matrix (Air or Ground or Both) (Continued)

Proposed Action	Expanded Fox 3 MOA and New Paxon MOAs	RLOD	BAX Restricted Airspace Addition	R-2205 Expansion/DMPTR	Night Joint Training	UAV RA Access	TFTA Roadway Access	Enhanced Ground Maneuver Space	JAGIC	ISBs	Missile Live-Fire	JPADS
EIS Study Areas of Effect	Fox 3 MOA/Paxon ATCAA	R-2202/R-2211	BAX RA R-2202/CFA	Yukon MOA/R-2205/YTA	Selected Alaska MOAs	Linkage between R-221, R-2202, R-2205	TFTA	DTA, YTA, TFTA	DTA, YTA, TFTA	DTA, YTA, TFTA	GOA	R-2205, R-2202 environs
Ground Areas (continued)												
FNSB	a				a		G		a	G		g
Denali Borough	a				a							g
East/SE Alaska	a				a							
Wood /Little Delta River area		a/g			a							g
Gulf of Alaska/Cook Inlet											a/g	
GOA coastal zone											a	
Copper River Basin Area	a				a							

Key: DTA=Donnelly Training Area; EIS=Environmental Impact Statement; FNSB=Fairbanks North Star Borough; GOA=Gulf of Alaska; ISB=Intermediate Staging Base; JPADS=Joint Precision Airdrop System; MOA=Military Operations Area; R=Restricted Area; RA=restricted airspace; RLOD=Realistic Live Ordnance Delivery; TFTA=Tanana Flats Training Area; TMAA=Temporary Maritime Activities Area; UAV=unmanned aerial vehicle; YTA=Yukon Training Area.

A=airspace; airspace operations overlap, interact or expand existing Special Use Airspace.
G= ground-disturbing activity.
a= noise effects from flight activity on surface/ground.
g=weapons hazard zone (potential surface closure/restricted access).

4.5 CUMULATIVE IMPACTS WITH OTHER DOD ACTIONS IN JPARC

4.5.1 Past, Present, and Reasonably Foreseeable Actions

[Table 4-2](#) lists DoD past, present and reasonably foreseeable actions within the JPARC ROI with a short description of the action. This list includes actions by several branches of the military that are similar in nature to those considered in this EIS, with a potential to expand the area of operations or increase activity in Special Use Airspace (SUA) or on the ground. [Figure 4-1](#) illustrates the approximate locations of these other military actions in the JPARC ROI.

Table 4-2. Past, Present, and Reasonably Foreseeable DoD Actions in JPARC Region of Influence

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
A	Range Complex Training Land Upgrades, Final Finding of No Significant Impact (FONSI) and Programmatic Environmental Assessment (EA) (USARAK 2010-2)	The installation formerly known as U.S. Army Garrisons, Fort Richardson and Fort Wainwright implemented site-specific range projects in support of Training.; sustainable range planning for small arms complexes and ranges; using adaptable use zones, and proposed environmental stewardship range construction guidelines to maximize the efficiency and effectiveness of environmental review of range and training land projects. The EA concluded with a FONSI.	X	X	X
B	JPARC Master Plan	The Master Plan was a precursor to the JPARC EIS for defining military requirements with input from military stakeholders in Alaska. Input was captured through interviews with unit and exercise subject matter experts and workshops. The plan identifies both short-term and funded actions and possible long-range capabilities. Future planned actions may include augmenting LATN training and helicopter gunnery, developing urban target set and high angle mountain marksmanship range on military land and additional dry targets on non-military land.		X	X
C	Resumption of Year-Round Firing Opportunities at Fort Richardson, Alaska, EIS (USARAK 2010-1)	This action restored year-round live-firing capabilities at the installation formally known as Fort Richardson. Past restrictions caused a shortage of indirect live-fire training opportunities at Fort Richardson. The purpose of this EIS is to ensure that Army units be certified with a variety of weapons systems before they can be safely and effectively deployed. The proposed action provides for training opportunities necessary for 4th Brigade Combat Team to attain and sustain certification.	X	X	X
D	GOA Navy Training Activities Final EIS/Overseas EIS (Navy 2011) Note: The Navy is planning to prepare a supplemental EIS, based on the original GOA Navy Training Activities EIS, in the near future.	The GOA EIS/Overseas Environmental Impact Statement analyzed the potential environmental effects that may result from the United States Navy’s Proposed Action and Alternatives. The proposed action and alternatives addressed ongoing naval training activities and Navy training activities for two large-scale joint force exercises, including Anti-Submarine Warfare activities and the use of active sonar. These exercises would each last up to 21 days and consist of multiple component training activities during 3 to 6 weeks annually in Temporary Maritime Activities Area or other areas of the GOA.		X	X

**Table 4-2. Past, Present, and Reasonably Foreseeable DoD Actions in JPARC Region of Influence
(Continued)**

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
D1	Proposed Relocation of the 18th Aggressor Squadron from Eielson AFB to Joint Base Elmendorf-Richardson	The Air Force Civil Engineer Center, on behalf of the U.S. Air Force, in accordance with NEPA, is preparing a Draft EIS for the Proposal to Relocate the 18th Aggressor Squadron from Eielson Air Force Base, Alaska to Joint Base Elmendorf-Richardson, Alaska and Rightsizing the Remaining Overhead/Base Operating Support at Eielson AFB. The proposed action includes two action alternatives and the no action (leave the 18th Aggressor Squadron at Eielson AFB).		X	X
E	Relocation of the ANG 176th Wing to Elmendorf AFB, Alaska, EA (Air Force 2007-1)	This EA analyzed the reassignment of the 176th Wing of the Alaska Air National Guard to Elmendorf AFB. The proposed action addressed the beddown of the 176th WG and all associated aircraft and expeditionary combat support elements at Elmendorf AFB including the placement of 12 C-130H, three HC-130N, and five HH-60G aircraft, for a total of 20 aircraft; construction of new facilities; renovation or modification of some existing facilities; replacement of support equipment; and a shift in full time and traditional Air National Guard personnel from their current assignment at Kulis ANGB to Elmendorf AFB.	X		
F	Establish the Delta MOA Complex EA (Air Force 2010)	This action resulted in recharting the Delta MOA Complex. The proposed action established connecting airspace to provide a realistic setting for MFEs. This action established several mitigation measures to reduce effects on other resources.	X	X	X
G	Grow the Army Force Structure Realignment EA (USARAK 2008-1)	The Grow the Army Force Structure Realignment EA evaluated the stationing of new units associated with Army growth and realignment in Alaska by approving a variety of projects that would provide necessary support to incoming Soldiers and their families, including additional Soldier and Family housing and support facilities, upgrading ranges to meet increased training requirements, constructing administrative and maintenance facilities, and provision of adequate maneuver and live-fire training facilities.	X	X	X
H	DTA-East Mobility and Maneuver Enhancement EA/FONSI (USARAK 2008-2)	USAG Alaska proposed to enhance the existing comprehensive training facility at DTA-East to meet the needs of a growing and changing Army and allow for sustainable use. The proposed enhancements improved existing training facilities for paratroopers to conduct additional formational tactics and provided sustainable trails and bivouac areas for unit training. The proposed action involves three enhancements: Donnelly Drop Zone Expansion, DTA-East Trail Network Upgrade, and Hardened Bivouac. The EA concluded with a FONSI.	X	X	
I	Management of Nike Site Summit, Fort Richardson EA/FONSI (USARAK 2008-3)	USAG Alaska proposed a management strategy for Nike Site Summit that addressed existing USAG Alaska military training needs, compliance with Section 106 of the National Historic Preservation Act (NHPA), human health and safety concerns, and vandalism issues associated with trespassing on Fort Richardson.	X	X	X

Table 4-2. Past, Present, and Reasonably Foreseeable DoD Actions in JPARC Region of Influence (Continued)

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
J	Eielson AFB Infrastructure Development in Support of RED FLAG–Alaska EA (Air Force 2007-2)	The Air Force proposed infrastructure improvements to meet mission needs of RED FLAG–Alaska exercises. This EA considered the requisite improvements programmatically and concluded that the proposed action would not result in significant impacts to the quality of the human or the natural environment.	X	X	X
K	Construction and Operation of a Railhead Facility and Truck Loading Complex, Fort Wainwright, Alaska, EA (USARAK 2007-1)	USAG Alaska proposed to construct and operate a new railhead facility and truck loading complex at Fort Wainwright. The proposed railhead facility and truck loading complex decreased deployment time to no more than 96 hours by increasing the existing train loading capacity with a location in close proximity to supply warehouses and ammunition supply points, and near existing rail lines.	X	X	X
L	Final Environmental Assessment for the Integrated Natural Resources Management Plan EA for U.S. Army Garrison Alaska (USARAK 2007-2)	The INRMP described natural resource goals, objectives, and policies that USAG Alaska uses to manage military and non-military use of Army lands in Alaska. Development and implementation of policies and procedures described in the INRMP ensure sustainability of Army lands. The EA concluded with a FONSI.	X	X	X
M	F-22 Beddown at Elmendorf AFB Alaska, EA/FONSI (Air Force 2006-1)	This EA addressed the beddown of two F-22A operational squadrons over a period of approximately 5 years at Elmendorf AFB, including flying sorties at the base for training and deployment after beddown; constructing or remodeling facilities and infrastructure to support the F-22A Operational Wing; and implementing personnel changes to conform to the F-22A Wing requirements. The two F-22A squadrons replaced one squadron of F-15C and one squadron of F-15E aircraft designated to leave Elmendorf AFB. F-22A training flights take place on Alaskan MOAs, ATCAA, MTRs, and ranges where F-15C and F-15E aircraft previously trained.	X	X	
N	EA, Conversion of the Airborne Task Force to an Airborne Brigade Combat Team, Fort Richardson, Alaska (USARAK 2005-1)	This action involved the stationing of approximately 2,400 additional personnel at the installation formerly known as Fort Richardson and the additional construction of new facilities to support the stationing increase. Airborne unit training activities increased at Fort Richardson, Fort Wainwright, TFTA and YTA, and DTA. Maneuver impact miles and maneuver training space increased by 200 percent with the conversion of the 1-501st ATF to an Airborne BCT. The EA concluded with a FONSI.	X		
O	Integrated Training Area Management Plan USARAK EA (USARAK 2005-2)	USARAK proposed a management plan using its Integrated Training Area Management (ITAM) program for a systematic approach to maintaining and improving its range and training land infrastructure. The management plan included use of standard operating procedures and best management practices for all ITAM component programs and projects to provide consistency among management approaches, increase oversight, and streamline processes and procedures to improve ITAM program efficiency. The management plan allows ITAM to more easily predict		X	X

**Table 4-2. Past, Present, and Reasonably Foreseeable DoD Actions in JPARC Region of Influence
(Continued)**

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
		possible impacts of projects and determine efficacy of project procedures. Project-specific assessments can tier from this EA by focusing on project-specific local conditions and impacts.			
P	Transformation of USARAK Final EIS (USARAK 2004-1)	This EIS addressed the transformation of the 172d Infantry Brigade in Alaska into Stryker Brigade Combat Team. This action addressed the change in training needed from mostly pedestrian to heavy-wheeled-vehicle activities in training areas.	X		
Q	C-17 Beddown Elmendorf AFB, Alaska, EA (Air Force 2004-1)	The proposed action addressed the replacement of the existing C-130 cargo aircraft fleet with eight new C-17 aircraft at the Elmendorf AFB, Alaska. The C-130 aircraft departed EAFB in 2006 and the C-17 aircraft arrived in 2007. The proposed action consisted of routine aircraft operations in the vicinity of EAFB, the construction and use of support facilities on EAFB, and an increase in the number of people needed to support all EAFB mission-related activities. The action included phased development of new facilities to minimize impacts to normal base operations.	X		
R	Alaska Army Lands Withdrawal Renewal Final Legislative EIS (USARAK 1999-1)	The Department of the Army determined there was a continuing military need for the use of Alaska lands now withdrawn from public use under the Military Lands Withdrawal Act and requested the renewal of previously withdrawn land of the Fort Wainwright Yukon Training Area, the Fort Greely West Training Area, and the Fort Greely East Training Area (each greater than 5,000 acres) and continued use for military purposes through new legislation.	X		
S	Construct a CALFEX Range Facility at Fort Greely, Alaska (USARAK 1999-2)	USARAK proposed to construct and utilize a simulated fixed fighting position similar to fire bases utilized in Southeast Asia. The CALFEX facility consists of approximately 11 one- and two-story prefabricated structures fortified with sandbags. The purpose of this CALFEX facility is to provide year-round, realistic joint combined arms live-fire training for Soldiers.	X		
T	Final Alaska MOA EIS (Air Force 1997-1)	The Air Force prepared an EIS evaluating the potential environmental effects of restructuring and using Special Use Airspace in Alaska for flight training and exercises. The purpose of the proposed action was to restructure and upgrade some MOAs in Alaska. The Record of Decision (ROD) included mitigations that are part of the existing operational parameters for several MOAs in the JPARC ROI.	X		

Table 4-2. Past, Present, and Reasonably Foreseeable DoD Actions in JPARC Region of Influence (Continued)

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
U	F-22 Plus-Up EA Joint Base Elmendorf-Richardson, Alaska (Air Force 2011-1)	A 2006 decision approved beddown of a second F-22 operational wing at Elmendorf AFB, 42 of the 60 F-15 primary aircraft assigned to Elmendorf AFB were replaced by 36 F-22 primary and four backup aircraft. Subsequently, the remaining F-15C squadron of 18 primary aircraft was reassigned from Elmendorf AFB, leaving what is now JBER with 36 F-22 primary aircraft. The proposed beddown added six primary aircraft and one backup aircraft to JBER to meet Air Force mission requirements. The JBER F-22 operational wing would have a total of 47 F-22 aircraft. The additional F-22 aircraft train in existing Alaska training airspace and ranges used by existing F-22 aircraft. An additional 103 personnel arrived at JBER.	X	X	
V	Stationing and Training of Increased Aviation Assets Within USARAK Final EIS (USARAK 2009-1)	Following this EIS, the U.S. Army, Alaska implemented the reorganization and augmentation of its aviation assets in Alaska as an Aviation Task Force (ATF). The ATF is permanently stationed at Fort Wainwright. New facilities provided for approximately 2,005 Soldiers, family members, and civilian support personnel. The EIS and ROD were completed in 2009.	X	X	X
W	U.S. Army Alaska Battle Area Complex (BAX) and a Combined Arms Collective Training Facility (CACTF), Construction and Operation (USARAK 2006-1)	The Army completed an EIS and ROD for construction and operation of a BAX and CACTF to be located at Eddy Drop Zone. The ROD was issued in July 2006. The Eddy site is located almost immediately east of Fort Greely and southeast of Delta Junction. The location is predominately upland habitat but the area where the BAX would be situated also lies within the 100-year floodplain of Jarvis Creek. The CACTF site rests about four miles from Delta Junction, and the BAX approximately five miles. The design of the BAX orients weapons firing to the south, away from Delta Junction.	X	X	X
X	Naval Special Warfare Maritime Training Activities – Kodiak Island	Navy Special Warfare Command currently conducts training exercises on and around Kodiak Island. Training consists of SEAL Qualification Training approximately six times per year, SEAL Team training approximately twice per year; and parachute operations once every two years. The USFWS concluded that the exercises are not likely to adversely affect listed species or adversely modify critical habitat.	X	X	X
Y	Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) Sonar	Final Supplemental EIS for the employment of the SURTASS LFA system was issued in April 2007, and the ROD was issued in August 2007 by the Navy. Under the action, a maximum of four systems would be deployed in the Pacific-Indian ocean area and in the Atlantic-Mediterranean area. Of an estimated maximum 294 underway days per year, the SURTASS LFA sonar would be operated in the active mode about 240 days.	X	X	X

**Table 4-2. Past, Present, and Reasonably Foreseeable DoD Actions in JPARC Region of Influence
(Continued)**

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
Z	C-17 Training Areas Final EA Elmendorf AFB, Alaska November 2005	C-17 training includes operations in Alaskan Special Use Airspace (SUA). The project also includes upgrading Runway 07/25 at Allen Army Airfield, frequent use of the runway as a C-17 assault landing zone, and frequent use of five existing drop zones for C-17 training. C-17 aircraft are included as users of the proposed Delta MOA.	X	X	
A1	Modification of Military Training Routes (MTRs) Draft EA June 2005	The Air Force modified existing MTRs within the state of Alaska to better connect the MTRs with existing SUA. These changed MTRs are used by aircraft with low level navigation missions. MFE training in the proposed Delta MOA includes low-level flight in the Birch and Buffalo MOAs.	X	X	
B1	Eielson BRAC projects Identified as a BRAC action by BRAC Act of 2005	This project removed 354th Fighter Wing assigned A-10 aircraft from Eielson AFB. An Aggressor Squadron of F-16s replaced operational F-16s at Eielson AFB. The Aggressor Squadron F-16s participate in MFE activity in this EA.	X	X	
C1	F-35 Beddown at Eielson	Basing locations for F-35 operational aircraft are being evaluated as part of a nationwide EIS. One alternative location under consideration is Eielson AFB. If Eielson were selected as an F-35 operational location, there would be construction at the base and training in the airspace. F-35s, either locally or remotely based, are assumed to participate in MFE training in this Delta MOA EA. The Air Force preferred alternatives for initial basing of the F-35A operational squadrons are Hill AFB, Utah and Burlington AGS, Vermont. Eielson AFB is not at this time included in the beddown alternatives being addressed in an environmental analyses for the initial F-35A operational squadrons.			X

Key: AFB=Air Force Base; AGS=Air Guard Station; ANG=Air National Guard; ANGB=Air National Guard Base; ATCAA=Air Traffic Control Assigned Airspace; BAX=Battle Area Complex; BRAC=Base Realignment and Closure; BCT=BRAC Cleanup Team; C=Celsius; CALFEX=Combined Arms Live-Fire Exercises; CACTF=Combined Arms Collective Training Facility; DTA=Donnelly Training Area; EA=Environmental Assessment; EIAP=Environmental Impact Analysis Process; EIS=Environmental Impact Statement; FRA=Fort Richardson; GOA=Gulf of Alaska; INRMP=Integrated Natural Resources Management Plan; ITAM=Integrated Training Area Management; JBER=Joint Base Elmendorf Richardson; Combination of Elmendorf AFB and Fort Richardson; JPARC=Joint Pacific Alaska Range Complex; MFE=major flying exercise; MOA=Military Operations Area; MTR=Military Training Route; NEPA=National Environmental Policy Act; NHPA=National Historic Preservation Act; ROD=Record of Decision; SBCT=Stryker Brigade Combat Team; SUA=Special Use Airspace; SURTASS LFA=Surveillance Towed Array Sensor System Low Frequency; TFTA=Tanana Flats Training Area; USAG =U.S. Army Garrison; USARAK=U.S. Army Alaska; USFWS=U.S. Fish and Wildlife Service; YTA=Yukon Training Area.

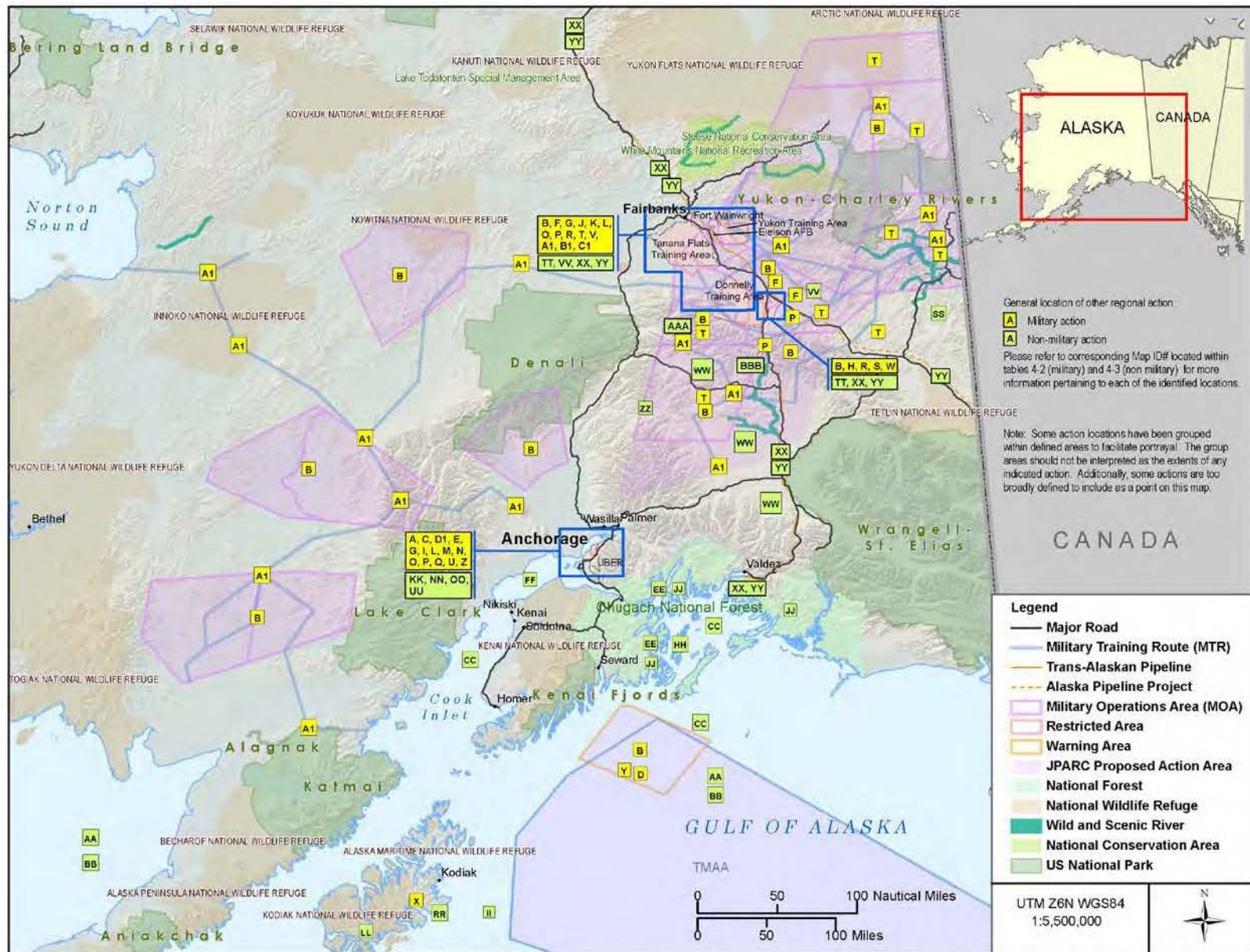


Figure 4-1. Locations of Other DoD and Non-military Actions in the JPARC Region of Influence

4.6 CUMULATIVE IMPACTS WITH OTHER REGIONAL ACTIONS

4.6.1 Past, Present, and Reasonably Foreseeable Actions in the Larger Region

[Table 4-3](#) lists past, present, and reasonably foreseeable non-military actions in the JPARC ROI. The approximate location of the actions is shown in [Figure 4-1](#), keyed to the location ID number in [Table 4-3](#). Several of the non-military actions involve planning and management of lands under the jurisdiction of a State or Federal agency. These agencies are responsible for use and development in order to sustain resources and promote legislated priorities of the managing agency. In addition to these actions, the Matanuska-Susitna Valley and Fairbanks-Delta Junction areas are among the fastest growing areas in Alaska. Natural growth is increasing the level of development in these areas and the presence of people in the wider region is increasing participation levels of activities in remote areas, such as cabin use and homesteading, hunting, fishing, subsistence harvesting, general aviation flights, mountaineering and trekking, ecotourism, and winter motorized access. Also expanding is the area of influence for extraction, development, and production of energy and mineral resources to meet national and global demands. These activities will continue to occur within current regulatory frameworks, and within the scope of plans and requirements of Federal and State land managers.

Table 4-3. Past, Present, and Reasonably Foreseeable Actions in the Larger Region

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
AA	Alaska Groundfish Harvest Specifications EIS	This NMFS proposal established harvest strategies for the Bering Sea and Aleutian Islands and GOA groundfish fisheries. Final EIS Record of Decision (ROD) signed in 2007.	X	X	X
BB	Alaska Groundfish Fisheries EIS	The NMFS EIS addressed implementation of Fishery Management Plans for groundfish fishery of the GOA and the groundfish fishery of the Bering Sea and Aleutian Islands Area, North Pacific Fishery Management Council. Final Supplemental EIS ROD signed 2004.	X	X	X
CC	Alaska Predator Ecosystem Experiment (APEX)	The APEX multi-agency pilot project was designed to investigate prey (forage fish) distribution, abundance, and availability within the Prince William Sound, Cook Inlet, and northern Gulf of Alaska. The project examined and documented the interactions of seabirds and their prey and observable changes.	X		
DD	Amendments to the Alaska Coastal Management Program, Approval, Implementation and Funding, U.S. Army USACE 404 Permit, Alaska	This action implemented new coastal management regulations with approval by the Office of Ocean Coastal Resource Management.	X	X	X
EE	Commercially Guided Helicopter Skiing on the Kenai, Peninsula EIS	This USFS decision allowed guided heli-skiing operations on portions of the Glacier and Seward Ranger Districts, Chugach National Forest, Glacier and Seward Ranger Districts, Kenai Peninsula. The Final ROD was signed in 2002.	X	X	

Table 4-3. Past, Present, and Reasonably Foreseeable Actions in the Larger Region (Continued)

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
FF	Cook Inlet Beluga Whale Subsistence Harvest- Supplemental EIS	The 2008 ROD for this EIS implemented a long-term plan to manage subsistence harvests of the Cook Inlet, Alaska, beluga whale stock.	X	X	X
GG	EFH Identification and Conservation, Implementation, North Pacific Fishery Management Council, Magnuson-Stevens Fishery Conservation and Management Act of 1976	Under this act, the NMFS and regional Fishery Management Councils (Councils) identified fishery management plans to minimize the adverse effects of fishing on waters and substrate necessary to fish for fish spawning, breeding, feeding, or growth to maturity.	X	X	X
HH	Exxon Valdez Oil Spill Restoration Plan-Draft Supplemental EIS	This 2011 draft EIS is evaluating a proposal to narrow and refine the scope of restoration efforts for the Exxon Valdez oil spill to five defined restoration categories: herring; lingering oil; long-term monitoring of marine conditions; harbor protection and marine restoration; and habitat acquisition and protection.			X
II	Gulf APEX Predator-Prey (GAP) Project	Issued a final report in 2005; GAP's primary goal is to document trophic relationships between Steller sea lions, their prey, predators, and potential competitors in waters near Kodiak Island, an area of continued sea lion declines and extensive commercial fishing.	X		
JJ	Helicopter Access to Conduct Forest Inventory and Analysis (FIA) in Wilderness FEIS	The USDA Forest Service 2007 ROD allowed the use of helicopters to access 540 FIA plots within the wilderness areas of the Tongass National Forest and a wilderness study area on the Chugach National Forest. Significant issues included effects to wilderness character, wildlife, and employee safety.	X	X	X
KK	Knik Arm Crossing (KAC)	The 2010 ROD approved the proposed KAC, an 8,000 to 14,000 feet long bridge by the Knik Arm Bridge and Toll Authority to enhance access between the Municipality of Anchorage and the Matanuska-Susitna Borough to the northwest. This effort includes a request for take of marine mammals incidental to construction over the course of five construction seasons (spring 2013 through autumn 2017).			X
LL	Kodiak National Wildlife Refuge, Draft Revised Comprehensive Conservation Plan, Implementation	A 2006 USFWS ROD to implement this plan provides management direction for activities and uses of Kodiak Refuge, goals and objectives for refuge programs, and compatibility determinations for the current uses of the Kodiak National Wildlife Refuge.	X	X	X

Table 4-3. Past, Present, and Reasonably Foreseeable Actions in the Larger Region (Continued)

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
MM	Port MacKenzie Development	Matanuska-Susitna Borough is planning to build a deep-water dock facility in the Point MacKenzie area, to facilitate economic development in the borough, for about 30 years, in addition to a barge dock completed in 2000, and a deep-water dock completed in 2005. These actions increase vessel traffic in the Anchorage area, and can contribute to economic and land development activity.	X	X	X
NN	Port of Anchorage Expansion	The Port of Anchorage accommodates approximately 75 percent of goods shipped into Alaska. The Port is planning a major expansion of its marine terminal capacity, including road and rail service expansion and redevelopment of the marine terminal. The expansion project could potentially increase vessel traffic to and from the GOA.		X	X
OO	Ferry Service for Knik Arm	Matanuska-Susitna Borough is developing a ferry link between Port MacKenzie and the Port of Anchorage with service to beginning in 2010. While not directly influencing the GOA, the project could increase vessel traffic in the Cook Inlet/Knik Arm area.			X
PP	Ring of Fire Resource Management Plan, Implementation RMP/EIS	The BLM prepared an RMP/EIS and decision in 2008, to provide direction for managing their public lands within the Ring of Fire planning area boundaries.	X	X	X
QQ	Other Potential Coastal Development	Various commercial, industrial, transportation, and residential development is possible in the coastal areas of Alaska. Mat Su Borough, for example, has discussed building a road/rail connection to Willow; a 200-megawatt (MW) gas-fired power plant has been discussed for Matanuska-Susitna Borough; residential development has been proposed near various lakes in Mat Su; and assorted growth and development proposals are regularly raised for the greater Anchorage area. These potential coastal developments may gradually reduce terrestrial habitat acreage and introduce pollutants that are associated with urbanization into the air and water.			X
RR	Alaska Aerospace Corporation Space Vehicle and Missile Launch Operations at Kodiak Launch Complex	Alaska Aerospace Corporation launches space launch vehicles, long-range ballistic target missiles, and other smaller missile systems at the Kodiak Launch Complex. Alaska Aerospace Corporation is seeking a marine mammal incidental take permit for 2011 to 2016.		X	X

Table 4-3. Past, Present, and Reasonably Foreseeable Actions in the Larger Region (Continued)

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
SS	The Eastern Interior RMP/EIS - In Progress	The BLM is developing a RMP for the Eastern Interior Planning Area. The Eastern Interior RMP will provide future direction for 6.7 million acres of public land including the White Mountains National Recreation Area, the Steese National Conservation Area, and the Fortymile area.			X
TT	Northern Rail Extension EIS	The Northern Rail Extension involves the construction and operation of approximately 80 miles of new rail line from North Pole, Alaska, to Delta Junction, Alaska (see Figure 1-1 for a map of the region). The rail extension would begin at the east end of the Chena River Overflow Bridge—north of Eielson AFB—and end at the southern side of Delta Junction. The project includes new structures, such as bridges, a passenger facility, communications towers, access roads for rail line construction and operations, and sidings.		X	X
UU	Natural Gas Pipeline - In Progress	Alaska is pursuing the construction of a natural gas pipeline extension in the Anchorage area.			X
VV	Eastern Tanana Area Plan (ETAP) - In Progress	The Alaska Department of Natural Resources has initiated the development of the Eastern Tanana Area Plan (ETAP). The ETAP will revise/update the existing plan to account for changes in land ownership to reflect the current and anticipated economic, social and environmental conditions in the area and to provide a sufficient land-base for the development and conservation of the state’s natural resources.			X
WW	East Alaska Resource Management Plan	This ROD approves the BLM’s proposal to manage the public lands within the Glennallen Field Office’s jurisdiction as presented in the RMP, as Alternative D in the June 2006 Proposed East Alaska RMP and Final EIS. Of the approximately 30,908,000 acres within the planning area, decisions in the approved plan will apply to 7,056,000 acres, classified as BLM, Native-selected, dual-selected, mineral estate, State lands, Native lands, National Park Service lands, USDA Forest Service, and private lands. The plan provides for establishing off-road vehicle use trails, biomass harvesting and development of mining claims, following provisions as set out in the approved plan. The RMP is expected to complete implementation in 2012.		X	X

Table 4-3. Past, Present, and Reasonably Foreseeable Actions in the Larger Region (Continued)

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
XX	The Trans-Alaska Pipeline	The Trans-Alaska Pipeline System was constructed to move crude oil from Alaska's North Slope to Port Valdez on Alaska's Prince William Sound. Construction of the 800-mile pipeline was completed in 1977 and traverses the JPARC ROI. The Trans-Alaska Pipeline System carries approximately 15 percent of the nation's domestic oil production.	X	X	X
YY	The Alaskan Pipeline Project	The TransCanada and ExxonMobil Alaska Pipeline Project proposes to design, permit and construct a new natural gas pipeline system beginning near Alaska's Prudhoe Bay field and following one of two alternative routes. The proposed alignments traverse the JPARC ROI. Submittal of documents and other environmental findings is expected in late 2012.		X	X
ZZ	Susitna-Watana Project	The proposed Susitna-Watana hydroelectric project is located in the Southcentral region of Alaska, approximately 120 miles north-northeast of Anchorage and 110 miles south-southwest of Fairbanks. The Southcentral region of the state is geographically bounded by the Alaska Range to the north and west, the Wrangell Mountains to the east, and the Talkeetna Mountains to the south. This region encompasses 86,000 square miles of the total 586,000 square miles of the state. As proposed, the project would include construction of a 2,700-foot-long and 700-foot-high dam, 39-mile-long reservoir and power plant on the Susitna River starting at river mile (RM) 184, approximately 34 miles upstream of Devils Canyon. The dam site would have temporary facilities for construction workers (up to 1,000 persons), permanent facilities for a small permanent resident crew to operate the dam, and a 7,000-foot runway. Transmission lines connecting into the existing Railbelt transmission system, an access road, railhead facility, and overhead transmission lines would also be constructed. The project includes development of public recreational facilities at the reservoir and is expected to attract and afford access into the area for multiple purposes.			X
AAA	Denali Air Special Recreational Use Permit	Denali Air is requesting to be able to conduct scenic glacier landings by fixed-wing aircraft near Mount Deborah on portions of the Yanert and Gillian Glaciers, with up to three departures daily from May 10 to October 10. Currently, BLM is conducting an environmental assessment.			X

Table 4-3. Past, Present, and Reasonably Foreseeable Actions in the Larger Region (Continued)

Key on Figure 4-1	Project	Description	Timeframe		
			Past	Present	Future
BBB	Pure Nickel Mineral Exploration and Mining Operations	Active mineral exploration on claims by Pure Nickel’s Man Alaska Project (2009-2014). These involve 240 miles of claims on State land called the Denali Block as well as some on the BLM land in the Amphitheater Mountains north of the Denali Highway under Fox 3 MOA. New production could involve open pit or underground mining. Both methods involve waste rock dumps, tailing stacks and ponds, toxic dust from ore trucks, mine drainage, transmission lines, and access roads.		X	X

Key: AFB=Air Force Base; ACMP=Alaska Coastal Management Program; APEX=Alaska Predator Ecosystem Experiment; BLM=Bureau of Land Management; CFR=Code of Federal Register; EFH=Essential Fish Habitat; EIS=Environmental Impact Statement; ETAP=Eastern Tanana Area Plan; FIA=forest inventory and analysis; FEIS=Final Environmental Impact Statement; FERC=Federal Energy Regulatory Commission; KAC=Knik Arm Crossing; LNG=Liquefied Natural Gas; MW=Megawatt; NMFS=National Marine Fisheries Service; NOAA=National Oceanic and Atmospheric Administration; NRE=Northern Rail Extension; OCRM=Ocean and Coastal Resource Management; PRMP/FEIS=Proposed Resource Management Plan/Final Environmental Impact Statement; RM=river mile; RMP=Resource Management Plan; ROD=Record of Decision; ROI=region of influence; TBAP=Tanana Basin Area Plan; USDA=U.S. Department of Agriculture; USFS=U.S. Forest Service; USFWS=U.S. Fish and Wildlife Service.

4.7 CUMULATIVE IMPACTS WITH OTHER EXTRA-REGIONAL ACTIONS

The only resource with potential for extra-regional cumulative impacts is air quality. The potential effects of proposed greenhouse gas (GHG) emissions are by nature global and cumulative impacts, as individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, an appreciable impact on global climate change would only occur when proposed GHG emissions combine with GHG emissions from other man-made activities on a global (extra-regional) scale.

Currently, there are no formally adopted or published NEPA thresholds of significance for GHG emissions. Therefore, this EIS presents the GHG emissions that would take place as a result of the proposed actions. Sections [3.1.4](#), [3.2.4](#), [3.3.4](#), [3.4.4](#), [3.5.4](#), and [3.6.4](#) and Appendix F, *Air Quality*, of this EIS present estimates, and subsequent calculations, of GHG emissions that would occur from each project action alternative. GHG emissions from the project alternatives are significantly lower than regional and global GHG emissions; thus, there would be no significant impact from increased cumulative GHG emissions from the project action alternatives and other DoD actions.

4.8 EFFECTS OF PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

The additive or interactive effects of the 12 actions proposed in this EIS, in aggregate, when considered together with the effects of other past, present, and reasonably foreseeable future actions in the greater JPARC region, are presented below by resource category.

4.8.1 Airspace Management and Use

Aggregate Impacts of Multiple JPARC Proposed Actions. Both the representative baseline use of the existing SUA and the projected use of the existing and proposed airspace have considered those past, present, and future actions that include airspace actions or any increase/reduction in military aircraft operations. For instance, changes in aircraft sortie-operations associated with the Joint Base Elmendorf-

Richardson (JBER) F-22 Beddown and Plus Up Environmental Assessments (EA), the JBER C-17 Beddown and Training EAs, and the U.S. Army Alaska (USARAK) Increased Aviation Assets EIS were reflected in the overall baseline and estimated airspace use projections, as appropriate. Airspace actions implemented as a result of the Alaska MOA EIS and the Delta MOA EA were incorporated as part of the existing Alaska SUA descriptions. Likewise, aircraft operations reflected in *The Gulf of Alaska Navy Training Activities Final Environmental Impact Statement/Overseas Environmental Impact Statement (GOA EIS/OEIS)* were considered in examining the potential impacts of the projected Air Force sortie-operations for proposed missile live-fire activities within the Temporary Maritime Activities Area (TMAA) and Warning Area 612 (W-612). As noted in Section [3.1.1.1](#), the proposed airspace actions would not affect or be affected by the structure and use of the existing Military Training Routes (MTRs) and LATN area shown in [Figure 4-1](#) and/or D-2 that were previously assessed and approved for tactical training activities at lower altitudes than those proposed for the Fox 3 and Paxon MOAs. The current/future uses of the MTRs and LATN areas would not have any cumulative impacts on the existing and proposed JPARC airspace. Therefore, the airspace and aircraft actions assessed in those past and present NEPA studies were incorporated, as appropriate, when the impact analysis and mitigations for each of the JPARC proposed actions.

There may be a greater potential for overall significant cumulative impacts during those daily timeframes when all existing and proposed airspace is activated by the Air Force and USARAK for their respective training mission requirements. Doing so could result in minimal to significant impacts on Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) air traffic operating through the region, depending on the locations/densities of both military and commercial/general aviation operations during those daily/seasonal timeframes when all SUA would be activated. The greater potential for cumulative impacts would be the manner in which the SUA is activated on a daily basis by the Air Force and USARAK in support of their respective training mission requirements. Analysis of each JPARC proposed action noted the potential for minimal to significant impacts on IFR and VFR air traffic, depending on the locations/densities of both military and commercial/general aviation operations during those daily/seasonal timeframes in which the SUA would be activated. The higher-density major flying exercise (MFE) operations over each 10- to 15-day flight period (60-day maximum per year) in the proposed Fox 3 and Paxon MOAs or Air Traffic Control Assigned Airspaces (ATCAAs) and their low/high-altitude sectors would have the greater potential to affect the Federal airway/jet route system and VFR aircraft use of this airspace. As noted in Chapter [3.0](#), IFR air traffic may have to be rerouted around this active airspace, as needed, and VFR pilots may want to delay or reroute their flights if they do not want to transit through the MOAs when the lower-altitude sectors are in use.

Concurrent use of either or all of the restricted airspace proposed for the realistic live-fire deliveries (expanded R-2202), the BAX restricted area, and the DMPTR (expanded R-2205) may impose greater impacts on IFR and VFR air traffic during those time periods MFEs are also in progress in the other SUA. The combination of the active MOAs/ATCAAs and the restricted airspace may limit air traffic control (ATC) options for transiting IFR en route and airport air traffic through this airspace. Activation of the lower MOA altitudes in which VFR aircraft normally operate, coupled with the prohibitions of flying through active restricted areas, may inhibit VFR flights through those commonly used areas/flyways.

Each of the proposed UAV corridors would encompass restricted airspace, which, depending on the corridor and altitude layer being activated, could restrict IFR and VFR aircraft from transiting through this affected airspace. The potential impacts of each corridor would differ with their location relative to Federal airways/jet routes and common VFR flight routes. If multiple corridors are activated simultaneously to permit UAV transit between the launch points and different range training areas, this may further restrict nonparticipating aircraft from transiting through the affected areas. The concurrent use of one or more corridors with the other proposed SUA during MFEs and other higher-density routine training periods would have a greater potential for significant impacts on IFR and VFR flights throughout

the region. The more-distant GOA airspace in which the proposed missile live-fire operations are proposed would not likely contribute to any cumulative airspace impacts.

It must again be emphasized that the extent of any individual or cumulative impacts would depend on the daily/seasonal times of SUA use, the altitude sectors being activated during those times, and the number of IFR or VFR flights operating within those areas and timeframes. Section 3.1.1.1 and Appendix D, *Airspace Management*, identify the average daily IFR flights on the affected Federal airways and jet routes and the reported annual public airfield operations. While these data provide a general basis for the amount of air traffic potentially affected by the individual or multiple proposed JPARC airspace uses, it cannot reasonably account for the number of flights that could be potentially impacted, any flight delays, or the additional distances flown and fuel usage if rerouting becomes necessary.

Overall, there are many variables to be considered in determining if and to what extent the JPARC airspace proposals may have cumulative impacts on all airspace uses in this region. Potential impacts on IFR air traffic and ATC system capabilities would be examined in depth by the Federal Aviation Administration (FAA) in the aeronautical study of each airspace proposal. Potential impacts on the general aviation community would be further addressed by the military with the Aircraft Owners and Pilots Association, Alaska Airmen's Association, and other aviation concerns as part of an effort to determine what measures may be required to best accommodate all Alaska airspace uses to the maximum extent possible.

Cumulative Impacts of JPARC Proposals with Other DoD Actions. Future flight training activities and airspace uses in Alaska over the next 20 to 25 years could include any aircraft type, such as the F-35, in the inventory of the United States and its allies. Such aircraft may be a participant in MFEs or transient routine training activities. The potential for cumulative significant impacts would be the same as discussed above and in the Chapter 3.0 Airspace Management analyses during those periods when all Air Force and USARAK SUA is activated for respective or joint operations as this could greatly limit or restrict VFR aircraft from operating throughout those areas more commonly flown. Any future basing of a new aircraft type in Alaska, or the relocation of aircraft (e.g., the F-16s from Eielson Air Force Base (AFB) to JBER, as is now being considered by the Air Force) would require that the appropriate environmental impact analysis processes be completed to include the potential impacts of such actions on all military and civil aviation airspace uses.

The ongoing EIS for the *Proposed Relocation of the 18th Aggressor Squadron from Eielson AFB to Joint Base Elmendorf-Richardson* is examining changes to airspace utilization that would be driven by the operation of the F-16 aircraft out of JBER. The proposed move would continue to support the training mission of the F-22 aircraft at JBER, although overall airspace utilization would likely be different from that described in this EIS. While the two action alternatives in the *Proposed Relocation of the 18th Aggressor Squadron EIS* address different airspace utilization plans, the proposed expansion of the Fox 3 MOA and creation of the Paxon MOA in this EIS would still support necessary training for F-16 and F-22 aircraft. Both types of aircraft would benefit from the increased volume and lower floor of the proposed new airspace when added to existing airspace because the operational requirements are the same, regardless of whether the two types of aircraft operate from the same or different bases. The cumulative level of impacts to Alaska airspace are expected to increase under the relocation proposal, as far fewer training flights would take place in the vicinity of Eielson AFB, while training in airspace nearer to JBER would increase. A detailed discussion of potential impacts to JPARC airspace and any appropriate mitigation measures will be included in the *Proposed Relocation of the 18th Aggressor Squadron EIS*.

Cumulative Impacts of JPARC Proposals with Other DoD and Non-Military Actions. No other DoD or non-military actions have been identified at this time for the JPARC region that would result in any significant ground safety risks beyond what is discussed in this EIS or that would increase any potential

for cumulative impacts. In any event, strict procedures and controls would be put in place to safely manage and protect the areas in which any hazardous activity is performed.

4.8.2 Noise

Aggregate Impacts of Multiple JPARC Proposed Actions. Cumulative noise impacts would occur in areas where the 12 component JPARC proposed actions overlap, but would not be expected to be significant. The combined impact of implementing JPARC actions together would not cause a significant impact that is not already identified in Chapter [3.0](#) for each of the individual proposals. Impacts associated with areas of overlap are described below.

Cumulative impacts could result from the proposed modifications to Fox 3/Paxon airspace areas in combination with proposed NJT. Increases in late-night flying (after 10:00 p.m.) proposed under NJT would increase the time-averaged subsonic noise level (L_{dnmr}) and time-averaged munitions noise level (CDNL) in affected airspace areas by approximately 1 decibel (dB). If this increase were to occur in addition to changes in noise level associated with the Fox 3/Paxon airspace modifications, minimal additional annoyance to persons beneath the airspace areas would be expected. NJT would not increase the number of sortie-operations flown or any aspect of the flying operations other than the time of day in which they occurred. The 1-dB increase would not result in noise levels beneath the Fox 3/Paxon airspace areas greater than 55 dB L_{dnmr} or 62 dB CDNL under any of the Fox 3/Paxon action alternatives.

Establishment and use of UAV restricted area access corridors would overlap spatially with NJT. However, noise impacts associated with UAV operations would be minimal and would not be expected to be significant either alone or in combination with other proposed actions.

JPARC proposed actions that involve munitions use include RLOD, BAX Restricted Airspace Expansion, Expansion of R-2205, the JAGIC, and live fire of AIM-9 and AIM-120 missiles, which would not individually or cumulatively result in significant noise impacts. Implementation of these actions alone or in combination would not result in noise levels exceeding 62 dB CDNL in areas not owned by DoD. Peak noise levels would not increase in instances where two JPARC proposed actions occurred in the same area.

Noise impacts associated with construction and tactical vehicle maneuvering would not be expected to be significant either alone or in combination with other JPARC component proposed actions. Construction activities and vehicle maneuvering result in noise-level increases that are limited in terms of duration and area affected.

Cumulative Impacts of JPARC Proposals with Other DoD Actions. The creation of SUA for military operations over time has provided a means to share the national airspace assets with the civilian community, and to provide for the safety of all users. It has also directed the noise resulting from military training to accumulate over certain areas. Overall, the noise levels in underlying areas remains relatively low and compatible with most underlying uses. The Air Force has developed procedures to avoid the most sensitive underlying areas in order to maintain the minimum possible noise levels without unduly compromising the quality of training. Nonetheless, in some areas, the soundscape has progressively changed through the introduction of man-made sources of noise (not just from military overflight). The military will continue to be sensitive to the impact of their activities and continue to refine procedures that will maintain acceptable conditions for affected persons and resources (including wildlife and specially designated lands).

Representative baseline noise conditions include currently ongoing DoD aircraft operations and munitions usage, as well as proposed changes in operations for which NEPA analysis has been completed. Changes in noise levels associated with the proposed actions are added to representative baseline noise conditions.

Therefore, overall noise impacts presented in Chapter [3.0](#) reflect cumulative impacts of the proposed actions with ongoing or planned actions. DoD actions that have not yet undergone NEPA analysis, and which are not reflected in noise-level calculations, include actions described in long-term planning documents such as the USARAK Range and Training Land Program Development Plan. Actions that may or may not be taken based on the findings of such plans are not yet ripe for NEPA analysis, and it is not possible at this time to determine the level of noise impacts associated with these potential actions. Similarly, if F-35 aircraft were to be bedded down at an installation in Alaska, noise impacts would be dependent on the number of aircraft and how those aircraft would operate. It is likely that noise impacts associated with F-35 aircraft operations would be significant in nature, but it is impossible to know the extent of impacts at this time.

Cumulative Impacts of JPARC Proposals with Other DoD and Non-Military Actions. There are no known civilian or joint-DoD-civilian past, present, or reasonably foreseeable actions that would result in significant noise impacts in combination with the proposed actions, although several non-DoD actions could result in increased noise levels. For example, the proposed Northern Rail Extension would introduce additional noise to areas affected by the proposed actions both during construction and once rail operation began. However, cumulative noise impacts would not be expected to be significant. Future civilian projects proposed in long-term planning documents such as the Tanana Basin Area Plan are not yet sufficiently well-defined to allow accurate prediction of the level of cumulative noise impacts when combined with the proposed actions.

4.8.3 Safety

FLIGHT SAFETY

Aggregate Impacts of Multiple JPARC Proposed Actions. Analyses of the cumulative impacts associated with flight safety risks, to include aircraft mishaps, near misses and midair collisions, and bird/wildlife-aircraft strikes, have considered the extent to which the proposed JPARC airspace actions and projected aircraft operations could increase any potential for these risks. As noted in Section [4.8.1](#), Airspace Management and Use, airspace actions and increased/reduced aircraft operations associated with other past, present, and future NEPA actions were already incorporated in the representative baseline and projected sortie-operations. Therefore, the potential for any cumulative flight safety impacts considered the concurrent activation and uses of the multiple proposed airspace actions.

The potential for aircraft mishaps and near misses/midair collisions can vary, depending on the locations/areas in which military aircraft flights are being conducted and the amount of military and other nonparticipating aircraft operating within the same general area. For all the airspace proposals, it was noted that there would not be any significant increase in flight operations beyond those representative baseline levels shown in Chapters [2.0–3.0](#) and Appendix D, *Airspace Management*. If individual base/unit flight training missions required the separate, independent use of multiple existing/proposed SUA areas, then aircraft sortie-operations within each of those areas would presumably remain at representative baseline levels. Therefore, this should not theoretically increase the mishap potential, based on aircraft mishap rates per 100,000 flying hours. The concurrent but separate use of the individual SUA areas by Air Force and USARAK aircraft should not result in cumulative flight safety impacts.

The greater potential for bird-aircraft strikes is within lower altitudes within the airfield environment and in other areas where low-altitude flights are being conducted. The lower altitudes proposed for use within each of the JPARC airspace actions could increase the risk of bird/wildlife strikes in those areas where the different species are known to exist during spring/summer/fall seasonal periods. As discussed above, the concurrent but separate use of the individual SUA areas should not result in cumulative flight safety risks or impacts associated with bird/wildlife strikes.

The programs and procedures that both the Air Force and USARAK have in place for preventing aircraft mishaps, maintaining situational awareness of other aircraft operating within the same areas, and keeping aircrews informed of potential bird activities and bird-aircraft strike hazards would continue to be effective in minimizing flight safety risks within individual and multiple SUA areas.

Cumulative Impacts of JPARC Proposals with Other DoD Actions. The potential for cumulative significant impacts would be the same as discussed above and in the Chapter [3.0](#) Flight Safety analyses during those periods when all Air Force and USARAK SUA is activated for respective or joint operations. No other significant DoD actions have been identified at this time that would result in any increased flight risks. Any future basing of a new aircraft type in Alaska, or the relocation of aircraft (e.g., F-16s from Eielson AFB to JBER), would require that the appropriate environmental impact analysis processes be completed to include the potential impacts of such actions on all military and civil aviation airspace uses.

The ongoing EIS for the *Proposed Relocation of the 18th Aggressor Squadron from Eielson AFB to Joint Base Elmendorf-Richardson* is examining changes to airspace utilization that would be driven by the operation of the F-16 aircraft out of JBER. The proposed move would continue to support the training mission of the F-22 aircraft at JBER, although overall airspace utilization would likely be different from that described in this EIS. While the two action alternatives in the *Proposed Relocation of the 18th Aggressor Squadron EIS* address different airspace utilization plans, the proposed expansion of the Fox 3 MOA and creation of the Paxon MOA in this EIS would still support necessary training for F-16 and F-22 aircraft. Both types of aircraft would benefit from the increased volume and lower floor of the proposed new airspace when added to existing airspace because the operational requirements are the same, regardless of whether the two types of aircraft operate from the same or different bases. The cumulative level of impacts to Alaska airspace are expected to increase under the relocation proposal, as far fewer training flights would take place in the vicinity of Eielson AFB, while training in airspace nearer to JBER would increase. A detailed discussion of potential impacts to JPARC airspace and any appropriate mitigation measures will be included in the *Proposed Relocation of the 18th Aggressor Squadron EIS*.

Cumulative Impacts of JPARC Proposals with Other DoD and Non-Military Actions. No other DoD or non-military airspace actions or aircraft operations have been identified for the JPARC region of that would result in any significant increase in flight safety risks beyond what is discussed in this EIS for future civil aviation growth in Alaska, to include aviation activities supporting the Susitna-Watana hydroelectric project, Denali Air Special Recreational Use, Pure Nickel Mineral Exploration and Mining Operations, or such activities. Any greater potential for aircraft mishaps and near misses/midair collisions resulting from such increased general aviation operations within the affected areas would be of utmost concern to the military proponents and all means would be pursued to minimize any increased risks as discussed above. As noted for the Airspace Management Cumulative Impacts, the respective awareness of all planned/scheduled flight operations through interagency coordination and communications would help promote flight safety practices among all military and non-military interests sharing the Alaska airspace environment.

GROUND SAFETY

As with the proposed action, several of the proposed cumulative projects may involve live-fire training activities. Existing procedures for range safety and control would continue to be implemented for all training activities. These procedures include coordinating all training activities with range safety personnel, as well as closing range gates and trails and surveying target areas prior to training to ensure that unauthorized vehicles/personnel are not present. Current procedures are also designed to limit unauthorized public access to training areas. These procedures include verbal warnings, blockades of prohibited areas, and marking of such areas with appropriate placards or red flags. As required, training

areas would be cleared of unexploded ordnance (UXO) or munitions debris to reduce the related hazard and provide a safe and constructive training environment for all training units and the public.

The use of live ordnance or pyrotechnics across different actions could potentially have an impact on ground safety in the form of an increased fire risk. Sufficient fire response resources are currently available to address cumulative impacts from simultaneous activities. Additionally, current fire management and response practices would continue, including monitoring the fire weather index and modifying planned training activities accordingly as well as conducting prescribed burns and mechanical thinning in training areas. Finally, the Integrated Wildland Fire Management Plan would be updated as required to address all required training. Implementation of current policies and procedures would mitigate the potential for any cumulative impacts on ground safety.

Cumulative Impacts of JPARC Proposals with Other DoD Actions. The potential for cumulative significant impacts would be the same as discussed above and in the Chapter [3.0](#) Ground Safety analyses during those periods when all Air Force and USARAK operations are in progress within the different range areas where live-fire activities are taking place. No other significant DoD actions have been identified at this time that would increase any potential for cumulative impacts. In any event, strict procedures and controls would be put in place to safely manage and protect those areas in which any hazardous activity is performed.

Cumulative Impacts of JPARC Proposals with Other DoD and Non-Military Actions. No other DoD or non-military airspace actions or aircraft operations have been identified for the JPARC region of that would result in any significant increase in flight safety risks beyond what is discussed in this EIS for future civil aviation growth in Alaska to include aviation activities supporting the Susitna-Watana hydroelectric project, Denali Air Special Recreational Use, Pure Nickel Mineral Exploration and Mining Operations, or such activities. Any greater potential for aircraft mishaps and near misses/midair collisions resulting from such increased general aviation operations within the affected areas would be of utmost concern to the military proponents and all means would be pursued to minimize any increased risks as discussed above. As noted for the Airspace Management Cumulative Impacts, the respective awareness of all planned/scheduled flight operations through interagency coordination and communications would help promote flight safety practices among all military and non-military interests sharing the Alaska airspace environment.

4.8.4 Air Quality

Aggregate Impacts of Multiple JPARC Proposed Actions. Cumulative impacts on air quality would consist of the proposed actions combined with any other past present, or future actions that would significantly affect air quality. As presented in Chapter [3.0](#) of this EIS for each proposed action, emissions increases from the proposed activities would be well below applicable conformity and NEPA emission significance thresholds. Any concurrent emissions-generating action in the vicinity of proposed activities would potentially contribute to the ambient impact of these emissions. However, since the proposed changes in operations would produce only minor increases in emissions, the combination of proposed actions and future project air quality impacts would not contribute towards an exceedance of any ambient air quality standards.

Regarding emissions of carbon monoxide and particulate matter 2.5 microns or less in diameter (PM_{2.5}), some proposed operations would occur close to and inside the carbon monoxide maintenance and PM_{2.5} nonattainment areas in Fairbanks North Star Borough (FNSB). Due to the large area of operation, ambient concentrations of these pollutants would be well diluted when transported to FNSB. Emissions of these pollutants from other future sources and projects in the region would occur far enough away from the FNSB nonattainment and maintenance areas that they would result in low increases in ambient carbon

monoxide and PM_{2.5} levels. As a result, the combination of proposed operational emissions of carbon monoxide and PM_{2.5} and future project air quality impacts would not contribute towards an exceedance of any ambient air quality standards for the PM_{2.5} nonattainment and carbon monoxide maintenance areas.

Cumulative Impacts of JPARC Proposals with Other DoD Actions. Emissions from recent DoD actions have generally been included in the baseline emissions for the areas of the proposed actions. Past, present, and future DoD projects affecting air quality in the region of the proposed actions include the resumption of year-round firing activities at JBER, range complex training land upgrades, relocation of the Air National Guard (ANG) 176th Wing to JBER, establishment of the Delta MOA complex, Donnelly Training Area–East (DTA-East) mobility and maneuver enhancements, Eielson AFB infrastructure development in support of RED FLAG–Alaska, and a Northern Rail Extension project.

The emissions analyses for the project alternatives determined that proposed increase in operational emissions would produce very low ambient pollutant impacts on the nearby pristine Denali National Park PSD Class I area. The nominal increase in ambient pollutant levels attributable to proposed emissions within this area, in combination with emissions from other future sources and projects in the region, would produce less-than-significant impacts on air quality values and visibility within Denali National Park. Therefore, proposed emissions would produce less than significant cumulative air quality impacts to the nearest PSD Class I area.

A beddown of F-35 aircraft at Eielson AFB (not currently proposed), whether additive to current operations or a replacement, would undergo evaluation, and could cause some increase in emissions, but it is unlikely that these would cause significant impacts in combination with other military operations in any specific air quality region.

Cumulative Impacts of JPARC Proposals with Other DoD and Non-Military Actions. Past, present, and future projects affecting air quality in the region of the proposed actions include the development of the Susitna-Watana hydroelectric project, Eastern Interior Rail Extension, the Eastern Tanana Area Plan (ETAP), and the East Alaska Resource Management Plan (RMP) (including biomass harvesting and additional mining). Associated activities will mostly occur outside of the FNSB area and not cause cumulative effects contributing to regional air quality concerns, and all projects will undergo evaluation based on location and projected emissions.

Many of the current and proposed projects in Alaska take place on the coast. These projects would be in the same area that is used for the live-fire exercises of AIM-9 and AIM-120 missiles. Some of the coastal projects in Alaska that affect air quality in the coastal region are the Exxon Valdez Oil Spill Restoration, the Port Mackenzie Development, and the Port of Anchorage Development. Cumulative impacts from the proposed actions and these non-DoD actions would not result in significant cumulative air quality impacts in the coastal areas of Alaska.

4.8.5 Physical Resources

Aggregate Impacts of Multiple JPARC Proposed Actions. Proposals that have the potential to interact with each other and provide a cumulative impact on physical resources include those projects involving roadway usage, off-road maneuvering (both vehicular and by training personnel), ordnance usage (both live and inert), and any actions in which regular ground disturbance would occur. For both programmatic and direct actions, access and other roadways and any accompanying infrastructure would have been constructed in compliance with all DoD, U.S. Army Garrison Fort Wainwright, Alaska (USAG-FWA), Federal, and State regulations for minimization of impacts on soils, up to and including the potential for soil erosion. As such, any future actions involving extended use of constructed roadways should not result in significant impacts on soils. Existing regulations require that off-road maneuvering in other than

established training areas be kept to a minimum (i.e. conducted only in emergency circumstances); military vehicles should remain on established roads only until reaching a designated training or staging area. Therefore, usage of roadways constructed as a result of the proposed actions would not have any significant cumulative impact.

Ground maneuvering during training or staging activities, both by personnel and by tracked vehicles, has the potential to increase soil disturbance and erosion. Existing best management practices (BMPs) and standard operating procedures (SOPs) as described in guidance documents such as the Integrated Natural Resources Management Plan (INRMP), the Range and Training Land Assessment, and previous NEPA compliance documents would ensure that ground disturbance and subsequent soil erosion were kept to a minimum. Cumulative impacts on soils as a result of ground maneuvering would therefore be minor.

For those actions requiring road construction in previously undisturbed areas, it would be assumed that technical specifications for the roadway are in line with all current regulations designed to minimize heat transfer and thus prevent any further permafrost degradation beyond that potentially associated with construction. Cumulative impacts of future roadway usage would therefore be minimal. Similarly, for those actions involving ground maneuvering and training, DoD and USAG-FWA regulations require that training take place in areas of minimal underlying permafrost whenever possible and that measures be taken to ensure cover vegetation is not removed. Therefore, cumulative impacts to permafrost would be minimal.

Cumulative Impacts of JPARC Proposals with Other DoD Actions. The definitive JPARC proposals have little potential to cause significant impacts on physical resources due to the limited amount of ground disturbance entailed. However, programmatic proposals for additional roads and ground-based maneuver could cause significant impacts on military lands (Yukon Training Area [YTA], Donnelly Training Area [DTA], and Tanana Flats Training Area [TFTA]). Permitting for development and functions on DoD land should manage any progressive impacts on physical resources through the institutional use of BMPs and compliance with regulatory requirements in permits and leases (such as stipulations on energy development or pipeline development by Federal or State regulators and land managers).

Cumulative Impacts of JPARC Proposals with other DoD and Non-Military Actions. Progressive development in the Fairbanks and Delta Junction area (through conversion of natural land for industry, infrastructure, residential and commercial uses) could have a progressive impact on soils, erosion and surface hydrology. In combination with JPARC proposals, and particularly the possible implementation of the programmatic proposals for additional roads and ground-based maneuver would add to these impacts. Permitting for development and functions (both on DoD and non-military land) should manage any progressive impacts on physical resources through the institutional use of BMPs and compliance with regulatory requirements in permits and leases (such as stipulations on energy development or pipeline development by Federal or State regulators and land managers). Development for the Susitna-Watana hydroelectric project does not overlap with any surface actions for JPARC or other military actions. This project and potential mineral development in the Fox 3 MOA area may have substantial localized impacts on physical resources, but these would not accumulate surface impacts with the JPARC proposals.

4.8.6 Water Resources

Aggregate Impacts of Multiple JPARC Proposed Actions. The geographic scope of the cumulative impacts of water resources is the TFTA, DTA, and Yukon Training Area (YTA) in the Fairbanks area and the watersheds immediately upstream and downstream of those training areas. The geographic scope is based on the area affected by ground disturbance from the proposed actions.

WATER QUALITY

Weapons training involving explosive munitions could impact surface water and groundwater quality. However, preliminary data from water quality monitoring indicates that munitions residues are not moving out the impact areas through surface water, ground water, windblown soils, or wildlife (USARAK 2006-2). With the mitigation and monitoring described in Sections [3.2.6.4](#) and [3.9.6.4](#), the cumulative impacts of weapons training on water quality would be less than significant.

Existing USARAK maneuver training involves stream crossings on YTA, DTA, and TFTA. TFTA training has occurred in the winter, which prevents direct sedimentation impacts on streambeds. Community growth in the Fairbanks area leads to an increase in overland flow and direct runoff and can also decrease water quality due to non-point source pollution. Construction of the Northern Rail Extension and the Alaskan Pipeline Project could increase sedimentation due to ground disturbance within the rights-of-way. Off-road vehicles (ORVs), off-road recreational vehicles (ORRVs), snowmachines, and airboats used for recreation and hunting often deviate from trails, leaving temporary trails. Scars from these trails can be long-lasting in some areas and a source of sedimentation in waterways and water bodies.

The construction of facilities, roads, and infrastructure for the ISBs, the JAGIC, and access routes would potentially increase sedimentation in waterways and water bodies. In addition, enhanced maneuver training could remove vegetation, which would increase sedimentation. Given implementation of the SOPs, BMPs, and mitigation measures cited in Chapter [3.0](#), sedimentation impacts on water quality would be moderate. Therefore, the contribution of the proposed actions to cumulative impacts on water quality due to sedimentation would be less than significant.

FLOODPLAINS

USARAK maneuver training involves stream crossing within the floodplains in YTA, DTA, and TFTA. Additional stream crossings could be developed as part of the proposed TFTA roadway access and enhanced access to vehicle maneuver space. In addition, the Northern Rail Extension would require a bridge over the Tanana River and could include portions of the railway within the floodplain of the Tanana River. The ISBs and JAGIC would be outside of the floodplain of major creeks and rivers. The cumulative impacts on floodplains from stream and river crossings would be less than significant.

WETLANDS

Wetlands can be damaged through maneuver and weapons training and lost due to the construction of facilities, roads, and access routes. In addition, wetlands are sensitive to indirect changes in hydrology, soil composition, and vegetation attributable to development. Past military vehicle use was largely restricted to the winter because of the impracticality, mechanical difficulties, and potential wetlands damage from operation in other seasons. Most of DTA (68 percent) and TFTA (74 percent) is wetlands, and approximately 17 percent of YTA is covered by wetlands (USARAK 2004-1). Overall wetland acreage in the DTA, TFTA, and YTA is approximately 958,000 acres (388,000 hectares).

The Northern Rail Extension would fill 814 acres (329 hectares) of wetlands within and in the immediate vicinity of TFTA and DTA (STB 2009). The Alaskan Pipeline Project may also result in the fill or disturbance of wetlands along the pipeline right-of-way. National regulations ensure that wetland permits are acquired before construction. ORVs, ORRVs, snowmachines, and airboats used for recreation and hunting often deviate from trails, leaving temporary trails. Scars from these trails can be long-lasting in some areas and damaging to wetlands.

TFTA roadway access and enhanced access to ground maneuver space (EGMS) could have negative impacts on wetlands in DTA, YTA, and TFTA. EGMS is programmatic, and the locations and footprints

of the access roads have not been determined. However, building roads that can be accessed year-round requires filling and grading long linear corridors through the training areas. Because of the high cover of wetlands in the training areas, it would be difficult to avoid damaging or destroying wetlands. Vehicle maneuvering in the summer is substantially more destructive to vegetation and wetlands than it is in the winter. Additionally, wetlands would be lost during construction of the ISBs and the JAGIC. There could be four ISBs and each ISB would have an approximately 110-acre footprint. The raw area of the JAGIC would cover 30,000 acres (12,100 hectares), but the area that would be impacted by ground disturbance with the construction of facilities and access roads would be much smaller. Therefore, the proposed actions in combination with other cumulative projects could result in a net loss in regional wetlands. Without mitigation, the overall cumulative loss of wetlands would likely be less than 10,000 acres (4,000 hectares) or less than 1 percent of the wetlands in the training areas. USAG-FWA's policy is no net loss in wetlands and USAG-FWA's active management plans serve to continually repair and restore wetland resources. In addition, mitigation required by the COE as part of the wetland permit process would reduce these impacts (refer to Chapter 3.0 for additional details). Therefore, with mitigation according to USAG-FWA's policies and procedures and mitigation according to the U.S. Army Corps of Engineers (USACE) wetland permit, the contribution of the proposed actions to cumulative impacts on wetlands would be less than significant.

Cumulative Impacts of JPARC Proposals with Other DoD and Non-military Actions. Based on current projections, there is little geographic overlap between JPARC projects and other DoD and non-military actions, so potential for cumulative impacts is minimal. All large-scale projects involving activities and ground disturbance will need to comply with existing regulations and permitting and would implement BMPs and requisite mitigations as part of the regulatory approval process.

4.8.7 Hazardous Materials and Waste

Aggregate Impacts of Multiple JPARC Proposed Actions. With respect to programmatic actions involving new construction, cumulative regional construction could result in increased incidental spills of hazardous materials. Petroleum, oil, and lubricant products (POLs) would be used by equipment and vehicles involved in construction. Spills of petroleum products or hazardous waste could potentially penetrate into onsite soils, resulting in soil and/or groundwater contamination. SOPs are in place for the cleanup of any spills that might occur. Similarly, disturbance of any known or unknown contaminated waste sites during regional training, construction, and operations would be addressed through standard IRP and MMRP procedures. Separate environmental analyses address project-specific hazardous materials and hazardous wastes. BMPs for regional construction and operations would reduce the potential cumulative impacts.

With respect to munitions, there would be an increase in residual metals contamination in soil as a result of increased ordnance use throughout the cumulative ROI. However, residual metals concentrations would be reported to EPA as required, and ordnance use would comply with existing range SOPs and BMPs, thus minimizing the potential for off-range migration of contaminants in surface water and groundwater that could result in the comingling of contaminants from multiple sources. As a result, significant cumulative impacts would not occur.

Cumulative Impacts of JPARC Proposals with other DoD and Non-Military Actions. Permitting requirements for the use and management of hazardous materials, wastes, and petroleum products will apply to both military and non-military industrial-scale operations in the JPARC ROI. Reporting and auditing of these operations by applicable regulators should manage and control the release of harmful products into the environment. The use of BMPs and compliance with permits requirements will minimize the potential for significant impacts from hazardous materials and wastes in the region over time.

4.8.8 Biological Resources

Aggregate Impacts of Multiple JPARC Proposed Actions. The study areas for the biological cumulative impacts analysis encompass the principal regions for activities related to JPARC definitive and programmatic actions. In the greater JPARC region around Fairbanks, the biological cumulative impacts analysis focuses on the habitats underlying and near the proposed expanded Fox 3 and new Paxon MOAs, as well as habitats within and near TFTA, DTA, and YTA. A separate study area is identified for the AIM-9 and AIM-120 missile training proposal, which would take place over the GOA. The study area boundaries necessarily extend outward from these project boundaries to encompass offsite and indirect effects that may be associated with activities conducted within the training areas.

Cumulative direct impacts on biological resources may result from loss of habitat or impaired access to important life-cycle resources on a population scale for those projects that include substantial ground disturbing activities, especially if combined, such as TFTA Road Access, Enhanced Ground Maneuver Access (EGMS), and ISBs. Project-related developments that reduce areas of vegetation communities and/or reduce or encroach on seasonal wildlife habitats have direct, local impacts. These adverse effects, when added to other projects occurring within the same geographic area, may have significant impacts. However, the cumulative amount of big game and migratory waterfowl seasonal habitat that would be permanently affected under the proposed JPARC projects that require facilities development within training areas is small compared with the overall amount of similar habitat available in the region. Training areas in general retain a fairly open character that allows many species to resume the behaviors to which they are accustomed after completion of construction or a training activity. No listed threatened or endangered species, or species proposed for listing, have been identified in the JPARC training areas, with the exception of the area designated for the live-firing of AIM-9 and AIM-120 missiles. This project is addressed separately below because it would take place in a different region (GOA), which contains different resources than areas where the other proposed JPARC actions would occur. The land types and wildlife present in the cumulative impacts analysis area are generally widely distributed, and few limitations to their availability were identified. Indirect impacts on wildlife include the addition of military training exercises and associated noise, human presence, and other disturbances that may cause changes in resting or feeding cycles, displacement from habitat, masking of sounds and related changes in vocal behavior, or disrupted breeding or young-rearing activities.

The primary issue of concern expected to result from implementation of the JPARC definitive and programmatic proposals under consideration is the introduction of year-round access of troops and equipment to the training areas, which means that training would be enabled during periods when the ground is not frozen, and thus during the breeding periods of most wildlife species. Migratory birds, generally absent when the ground is frozen, would be present and breeding during these seasons. Additionally, several of the programmatic proposals call for construction of roads to enable all-season access within and to training areas, and several of the programmatic proposals call for construction of large-scale facilities in each of the training areas. These projects, particularly those including road construction with the resulting habitat fragmentation, may have substantial cumulative direct and indirect impacts on vegetation and wildlife in the areas of higher troop occupancy during times of use. For this reason, the important habitat areas listed by project in the preceding chapters as siting criteria should be included in project final design to avoid adverse impacts to the extent practicable. BMPs for seasonal restrictions on removal of vegetation for construction and replacement thereof with native species would reduce adverse impacts. JPARC project changes would take place against a background of recent increases in troop strength and intensification of training in the JPARC area. Additionally, global changes in climate are manifesting themselves locally in an “Arctic warming trend,” including a shorter period of frozen conditions—that is, a later onset of freezing in the fall and an earlier thaw in the spring. According to Comiso (2003), the melt season in the Arctic is lengthening by 10 to 17 days per decade. Walsh et al. (2011) indicates that during the past decade, the Arctic has experienced its highest

temperatures of the instrumental record and that recent paleo-reconstructions also show that recent Arctic summer temperatures are higher than at any time in the past 2,000 years. Warming since the 1800s, as shown by the instrumental data, is outside the envelope of natural variability observed over the last 2,000 years (Walsh et al. 2011). These changes and related changes (e.g., diminishing extent of sea ice), the effects of which are not fully understood, are expected to put additional pressures on the plants and wildlife of the region (Burrows et al. 2011). Therefore, the cumulative impacts from multiple JPARC proposed projects are expected to be adverse and significant for several biological resources.

The following discussion summarizes the analysis by site-specific JPARC geographic areas, with other DoD and non-DoD actions.

FOX/PAXON MOAS

Cumulative Impacts of JPARC Proposals with other DoD Actions. No cumulative impacts on vegetation are expected because project activities in this area involve overflight only, and there would be no related ground activity that could directly affect vegetation resources or wildlife habitat. The primary issue for wildlife is behavioral response to jet aircraft overflight at altitudes as low as 500 feet above ground level (AGL). Under the proposal, flights as low as 500 feet AGL could occur in the existing Fox 3 MOA (where the current lower altitudinal limit is 5,000 feet AGL) as well as in the proposed expanded Fox 3 MOA and the proposed Paxon MOA that would be established to the east of the expanded Fox 3 MOAs. Under the proposed action, all these airspace areas would have a minimum flight altitude of 500 feet AGL. Potential disturbances to wildlife in this area could include behavioral responses to overflights during critical life stages such as calving/lambing, or movement induced by overflights requiring additional energy expenditure. The Fox 3/Paxon MOA areas lie to the south of and do not overlie any of the ground-based training areas discussed below. The proposed Fox 3/Paxon MOA area would also be subject to changes in timing of nighttime overflights associated with the JPARC NJT project. There would be very limited interchange of animals between the training areas and the MOAs because of the intervening mountainous terrain of the Alaska Range. Because the biological effects of the Fox 3/Paxon MOA airspace are expected to be adverse but not significant, and because no substantial impacts on biological resources from other projects in the affected area have been identified, cumulative impacts in this area would be insignificant.

Cumulative Impacts of JPARC Proposals with Other Non-Military Actions. The Susitna-Watana Hydroelectric Dam and the Pure Nickel Mineral Exploration and Mining Operations projects may include widespread environmental effects to terrestrial and aquatic wildlife species and their habitats in the Susitna River watershed under the Fox/Paxon MOAs analysis area and downstream. Because the JPARC actions proposed for the Fox/Paxon MOAs are not expected to affect biological resources in a significant manner with implementation of the proposed mitigation measures, this proposal would not make a substantial contribution to other significant cumulative impacts in the area.

DONNELLY TRAINING AREA

Cumulative Impacts of JPARC Proposals with Other DoD Actions. Substantial losses of vegetation within DTA are not expected, given the amount of construction proposed and the availability of similar vegetation types in the region. BMPs and SOPs are in place that would minimize the effects of construction in the training area and activities in the target areas. The primary issue for wildlife is the expansion of year-round access for training activities, which could disturb or cause temporary avoidance of resting or nesting areas by migratory waterfowl, and could also disturb moose calving/rutting, brown bear spring and fall resource access, and caribou calving/rutting activities. The combination of changes in seasonal troop access and intensification of training activity associated with JPARC proposals coupled with recent increases in troop numbers and intensification of training in DTA is likely to have adverse impacts on wildlife. Established BMPs include scouting training areas for big game prior to performing

training activities and halting such activities if big game are present. For JPARC proposals involving the expansion of restricted areas near rivers (such as BAX), established military flight practices for the interests of personal safety will ensure that pilots remain aware of waterfowl congregation areas and seasons, and this should reduce potential training disturbances of migratory birds. Although the individual JPARC definitive and programmatic projects affecting DTA may be less than significant on an individual basis given application of mitigation and established resource-protective BMPs and SOPs, collectively the direct and indirect impacts on biological resources would be substantial within portions of DTA and the site-specific impacts cumulatively significant.

Cumulative Impacts of JPARC Proposals with Other Non-Military Actions. No cumulative effects are expected from non-military projects except for the Northern Rail Extension project, which could have substantial impacts to habitats and species that use them along the 80-mile stretch of the Tanana River. This includes a portion of the route outside the western boundary of YTA, an area used primarily by waterfowl and moose. Much of this area is north of DTA but some overlap occurs, including with DTA-East, and has the potential to add to effects from JPARC on anadromous fish habitat and several species that use the wetlands area there, including moose for calving, caribou in winter, sandhill cranes, other waterfowl, and raptors during migration. Therefore, the cumulative impacts from multiple JPARC proposed projects including EGMS, ISBs, and JAGIC with the addition of the Northern Rail Extension project are expected to be adverse and significant for several biological resources.

TANANA FLATS TRAINING AREA

Cumulative Impacts of JPARC Proposals with Other DoD Actions. Localized substantial losses of vegetation and habitat in the TFTA Road Access project area would be associated with construction of proposed access roads. BMPs and SOPs in place would minimize, to the extent practicable, the impacts to biological resources of road construction in the training area and activities in the target areas. The primary issue for wildlife is the introduction of a year-round, all-weather access road within TFTA for training activities. Currently, TFTA has only been accessible during the winter months, and the new disturbance outside of winter may disturb or cause temporary avoidance of resting areas by migratory waterfowl, adversely affect nesting activities that could cause reproductive loss, may adversely impact moose calving/rutting activities, or may affect fish spawning streams. The combination of changes in seasonal access and intensification of training activity associated with JPARC proposals, coupled with recent increases in troop numbers and intensified training in TFTA is likely to have adverse impacts on wildlife. Established BMPs include scouting training areas for big game prior to performing training activities and halting such activities if big game are present. As for DTA, preflight pilot awareness of migratory waterfowl congregation areas and seasons may reduce disturbance to birds present. Although the impacts of individual JPARC definitive and programmatic projects on TFTA may be less than significant given application of mitigation and established resource-protective BMPs and SOPs, collectively the direct and indirect impacts on biological resources would be substantial within portions of TFTA, and the site-specific impacts would be adverse and cumulatively significant.

Cumulative Impacts of JPARC Proposals with Other Non-Military Actions. No cumulative effects are expected from non-military projects except for the Northern Rail Extension project, which could have substantial impacts to terrestrial, wetland, and aquatic habitats and species that use them along an 80-mile stretch of the Tanana River. TFTA has the largest boundary overlap with the Northern Rail Extension project, which could add to effects from JPARC on anadromous fish habitat, raptors during migration, waterfowl, moose all year, and a small portion of habitat for caribou winter use. Therefore, the cumulative impacts from multiple JPARC proposed projects including TFTA Road Access, EGMS, and ISBs, and JAGIC with the addition of the Northern Rail Extension project are expected to be adverse and significant for several biological resources.

YUKON TRAINING AREA

Cumulative Impacts of JPARC Proposals with Other DoD Actions. Substantial impacts on vegetation within YTA are not expected given the amount of construction proposed and the availability of similar vegetation types in the region. BMPs and SOPs in place would minimize the effects of road and other construction in the training area and activities in the target areas. The primary issue for wildlife is the introduction of year-round access for training activities, which may disturb or cause moose to avoid the localized calving/rutting habitat on YTA. Established BMPs include scouting training areas for big game prior to performing training activities and halting such activities if big game are present. The combination of changes in seasonal access and intensification of training activity associated with JPARC proposals coupled with recent increases in troop numbers and intensified training in YTA is likely to have adverse impacts on wildlife. Although the impacts of individual JPARC definitive and programmatic projects on YTA may be less than significant given application of mitigation and established resource-protective BMPs and SOPs, collectively the direct and indirect impacts on biological resources would be substantial within portions of YTA, and the site-specific impacts would be adverse and cumulatively significant.

Cumulative Impacts of JPARC Proposals with Other Non-Military Actions. No cumulative effects are expected from non-military projects except for the Northern Rail Extension project, which could have substantial impacts to habitats and species that use them along an 80-mile stretch of the Tanana River. This includes a portion of the route along the eastern edge of YTA, an area used primarily by waterfowl and moose. Therefore, the cumulative impacts from multiple JPARC proposed projects including EGMS, ISBs, and JAGIC with the addition of the Northern Rail Extension project are expected to be adverse and significant for several biological resources.

TEMPORARY MARITIME ACTIVITIES AREA (TMAA)

Cumulative Impacts of JPARC Proposals with Other DoD Actions. The live firing of AIM-9 and AIM-120 missiles is a programmatic action that would take place within the TMAA offshore in the GOA. This involves the Air Force's firing of AIM-9 and AIM-120 air-to-air missiles from F-22 aircraft at unmanned aerial targets (typically flares or tactical air-launched decoys over the GOA). The same area is the subject of proposed land, air, and undersea training activities evaluated in a 2011 final environmental impact statement/overseas environmental impact statement (EIS/OEIS) (Navy 2011) in which use of the same missile types by Navy aircraft is addressed, although this use is a minor component of the overall Navy proposed action. The TMAA supports populations of endangered or threatened species, including marine mammals, sea turtles, and birds, as well as Essential Fish Habitat (EFH). The primary residual impact of these air-to-air missile training exercises is that the expended missiles and targets enter the marine environment and are not recovered, ultimately settling on the ocean floor where they would be colonized by benthic marine organisms and slowly degrade. These objects would be widely dispersed over the TMAA area of 42,146 square nautical miles (NM²) (145,482 square kilometers [km²]). Expended training materials may slowly leach toxic substances at very low concentrations with minimal and localized adverse effects on marine water quality or biota. Any effect would be confined to the individual object and would diminish to background levels at very short distances from the object. Effects of the Air Force JPARC programmatic action would be in addition to the combined effects of the proposed surface, subsurface, and aerial combat training proposed by the Navy (Navy 2011), but the cumulative impact would be less than significant because of the very small magnitude and less-than-significant effect of the programmatic action proposed by the Air Force.

Cumulative Impacts of JPARC Proposals with Other Non-Military Actions. No cumulative effects have been identified that would affect biological resources within this area.

4.8.9 Cultural Resources

Aggregate Impacts of Multiple JPARC Proposed Actions. No construction would be associated with the JPARC definitive proposed actions. Thus, historic buildings and archaeological sites at the JPARC AFBs and Army Posts would not be impacted. Previous projects, such as *Stationing and Training of Increased Aviation Assets within USARAK* (USARAK 2009-1) and *Resumption of Year-Round Firing Opportunities at Fort Richardson, Alaska* (USARAK 2010-1), resulted in on-base construction, some of which affected historic architectural resources at Fort Wainwright and Fort Richardson.

Cumulative Impacts of JPARC Proposals and Other DoD Actions. Other past DoD projects with a potential to contribute to cumulative impacts on ROI cultural resources include the *Final Environmental Impact Statement for the Construction and the Operation of a Battle Area Complex and a Combined Arms Collective Training Facility within U.S. Army Training Lands in Alaska* (USARAK 2006-1). Construction and use of range facilities affected cultural resources at the Eddy DZ in DTA-East. Consultations and adopted mitigations in compliance with Section 106 of the National Historic Preservation Act (NHPA) reduced impacts to acceptable levels. Implementation of JPARC programmatic actions involving widespread ground disturbance could have significant impacts on some locations. These proposals will undergo thorough investigation, consultation, and mitigation, as identified in that process.

Cumulative Impacts of JPARC Proposals with Other DoD and Non-Military Actions. Civil projects with a potential to contribute to cumulative impacts on ROI cultural resources include the Northern Rail Extension and the future Alaska Pipeline Project. Such projects potentially result in direct impacts on archaeological resources. TransCanada and ExxonMobil are pursuing the construction of a natural gas pipeline from the North Slope through central Alaska into Canada, a project that could impact cultural resources and thus contribute to area cumulative impacts. Section 106 review has been undertaken separately for these projects. Similarly, large-scale actions such as the Susitna-Watana hydroelectric project and Pure Nickel mineral exploration and development in the Amphitheater Mountains may have substantial impacts on cultural resources, but these do not overlap with surface activities for any of the definitive JPARC proposals or future DoD actions that might expand surface training on military lands.

Any Federal projects are subject to compliance with NEPA and Section 106 of the NHPA with the result that adverse effects would be mitigated, reducing cumulative impacts that could occur.

The JPARC definitive proposed actions would not be expected to result in significant impacts on any buildings, archaeological sites, or traditional resources eligible for listing on the National Register of Historic Places (National Register) in the ROI. The projects would be subject to compliance with NHPA Section 106, with the result that adverse effects would be mitigated. The JPARC TFTA Roadway Access Proposed Action has greater potential to result in impacts on archaeological sites or traditional resources if the route selected passes through areas historically or currently used by Alaska Native peoples. As with other Federal actions, the TFTA Roadway Access project would be subject to compliance with NHPA Section 106, and the adverse effects would be mitigated to an acceptable level. Thus the JPARC definitive and programmatic proposed actions would not be expected to result in incrementally significant or adverse cumulative impacts on National Register-eligible buildings, archaeological sites, or traditional resources in the region in conjunction with other past, present, or reasonably foreseeable projects.

4.8.10 Land Use

The primary interactions that multiple actions may have on land use, public access and recreation would derive from the following:

- Effects of noise from aggregated use of SUA or expansion of SUA
- Effects from closure or restricted access on the ground due to aggregate hazardous activities (particularly on non-military land)
- Effects of construction and development in terms of displacing current uses or changing the suitability of an area for ongoing uses and activities
- Effects from increasing the operational tempo of surface and air missions within the JPARC on non-military uses and activities

Aggregate Impacts of Multiple JPARC Proposed Actions. The combination of JPARC proposals could expand the areas where military activities occur both in the air and on the surface. The Fox 3/Paxon MOA proposal and additional night joint training in selected MOAs could together increase noise levels by about 1 dB over those assessed. This incremental difference would have minimal effect on underlying non-military land although night overflight may be bothersome to some remote communities or homesteads. Several other proposals would use restricted airspace where noise impacts from aircraft would primarily affect underlying military land which serves uses that are not noise sensitive. Public use for recreation on military land tends to occur when military missions are not taking place nearby (therefore, noise is not a direct concern).

Several actions would increase (and expand the area underlying) restricted airspace for both hazardous and non-hazardous training, particularly on DTA-West, DTA-East, YTA, and TFTA and the area between R-2211 and R-2202. Cumulatively these would result in less time available for non-military uses (mostly hunting) on military land in the Fairbanks area from about 80 percent down to less than 50 percent available annually. With a similar loss of access to adjacent State land (for RLOD), this would have an adverse and potentially significant impact on recreation and hunting for the residents in the Fairbanks/Delta Junction area. The Army will continue to publish its training and area closures particularly during September to allow the public to make appropriate plans based on whether they will be able to access military lands.

Physical changes on military land from more ground-based activity for integrated training and ground maneuver training could alter vegetation and surface conditions. This disturbance could indirectly lead to changes in wildlife and their movement patterns, and changes in the appearance of the landscape. This could have potentially significant indirect impacts on the quality of hunting and recreation on military land with longer-term effects. The ISB, TFTA Roadway Access, and EGMS proposals may involve development of land in the same general area, with combined effects particularly on TFTA.

Cumulative Impacts of JPARC Proposals with Other DoD Actions. DoD actions that may cumulatively affect land use and recreation are primarily those involving use and changes to SUA. Past and recent actions are reflected in baseline noise conditions and form the existing context for land use and recreation in the region. In combination with these past actions and the EIS proposals, any future Air Force restructuring could result in redistribution of training activities. This could result in increased use of specific regional SUAs and increased noise levels in underlying areas. It is unknown to what degree any future changes in noise could impact existing sensitive locations. For example, F-35s could fly at higher altitudes than a current mission (resulting in attenuated noise levels) but also could increase noise at a staging location or supersonic activity in the region. Evaluation of future Air Force proposals would use an updated baseline of flight activity and could find potential for significant noise impacts in some locations. The Air Force would continue to coordinate with agencies to identify and avoid sensitive locations for future military actions.

Several actions have in the past involved ground-based activities on military ranges and training areas (such as ground maneuver, development and use of military infrastructure firing ranges). These are

reflected in existing baseline conditions. To date, availability of military land for public access and recreation has been relatively high. Historic activities have resulted in restricted access on portions of military land due to hazards (primarily from UXO). The current proposal would not increase the amount of land that is continually in accessible, although temporal restrictions would increase on accessible land. Foreseeable future proposals and development of the JPARC over time may further decrease the amount of time that public use can take place on military land. Impacts from this may affect a small percentage of the local population that preferentially hunt and recreate on military lands. This is a moderate impact for a few persons. Ground-based military actions should have little effect on non-military lands and surrounding areas. Future proposals should evaluate any expansion of noise exposure greater than 62 dB CDNL and peak exposure above 115 dB outside of military land, particularly if they involve new types of munitions or increased expenditures.

In general, management plans and conservation actions (implemented for most of the training lands in the ROI) will improve natural resources and address sustainable public use on State and Federal land. Many past, ongoing, and future actions involve airspace use and have included ongoing measures to reduce effects of noise on land uses. JPARC operations will not generally directly interfere with access and implementation of these plans; however, noise from diverse military missions (both air and ground) may conflict with goals for recreation and pristine areas in nearby areas and within surrounding communities.

Specific actions, such as the RLOD and R-2205 expansion proposals have potential to impinge on real estate interests outside of current military land. Other military actions in the future (such as a more fully defined JPADS capability) may also affect lands outside the existing training areas. Incremental expansion of surface access for military use (in combination with the military withdrawals) has had a major influence on land use in the Fairbanks area. While the local economy has had great benefit from the military presence, future attention to mutual encroachment is becoming more necessary.

Cumulative Impacts of JPARC Proposals with Other DoD and Non-Military Actions. In addition to military actions in the region, future development and productive uses on Federal and State lands may impact physical and biological resources, and in some areas, may affect recreational opportunities and other land uses. Several non-DoD actions (recent past and ongoing) involve planning and the implementation of management priorities for Federal, State, and borough lands within the greater ROI of the JPARC. These will influence how and what development and use is preferred and the degree to which controls of any kind are used to manage future uses. For example, the continuing urbanization in and around Fairbanks and the along the Alaska Highway is slowly transforming the natural landscape and the interface between valued natural qualities in the region and the desire for economic and community stability. The areas with most overlap with JPARC include the Alaska Range, Talkeetna Mountains, the Fairbanks-Delta Junction Corridor, Richardson Highway and Paxson area, and Chena River area. The degree to which cumulative regional uses develop incompatibility and pressure on the natural environment could trigger a need for an east-central Alaska regional joint land use study (JLUS) in the future.

The new alignment for the Northern Rail Extension provides opportunities for crossing the Tanana River, for both military and non-military purposes. In addition to the existing Trans-Alaska Pipeline, a new Alaska Pipeline Project has a preliminary alignment that passes through this same area. Several JPARC actions (TFTA Roadway Access, new ISBs, and EGMS) involve developing and committing land to support human activities in the same general area within the Fairbanks-Delta Junction corridor. To ensure mutual compatibility and benefit, these actions would benefit from coordinated planning with other regional agencies on transportation requirements, bridges, and potential joint-use of new infrastructure in the Fairbanks-Delta Junction corridor. Some of the RLOD training missions would use delivery profiles where the surface danger zone (SDZ) overlaps with the new rail corridor. During the deliveries, the Air Force must clear the hazardous area of nonparticipating persons, including occupied vehicles and

trains. Most of the rail traffic (about five round-trips each day) would occur in the morning and evenings. Potential incompatibility of these uses would require coordination of schedules between the Air Force and the Alaska Surface Transportation Board to ensure that RLOD missions activating the larger SDZs occur only when trains are outside of the hazardous area.

The area underlying existing Fox 3 MOA and the proposed expansion area may undergo substantial changes from surface development of the Susitna-Watana Hydroelectric project, and additional mineral exploration and development in the Amphitheater Mountains and Tangle Lakes area. These projects will increase the level of human activity in specific locations, particularly where the Susitna project constructs roads and recreational amenities that the public may use. The cumulative effect of surface development and use of Fox 3 MOA may change qualities of solitude in localized areas. Additional access and amenities serving the growing human presence (including commercial businesses) could benefit recreational access. The cumulative effect of development may also detract from the qualities of naturalness that many persons seek who value this area for extreme and remote outdoor pursuits.

The Matanuska-Susitna Valley and the Fairbanks-Delta Junction areas are experiencing rapid growth. More people are using and extending their activities into remote areas. The consequence of this is a gradual change in remote areas that have been absent of human activity and interruptions in the past. The JPARC actions and other DoD and Non-Military actions and development add to this trend. The advantage of development is that more persons have access to resources and opportunities (both productive and recreational) in remote areas. Alaska is a vast country and will continue to have wild and pristine areas, but popular and more accessible locations may gradually experience a decline in naturalness.

4.8.11 Infrastructure and Transportation

The JPARC proposals, overall, would have minimal effect on regional infrastructure and transportation. The cumulative impact analysis considers how JPARC actions, in combination with other DoD and non-military actions, including organic regional growth, may impact these systems.

UTILITIES

Alaska is unique in the United States in terms of its infrastructure needs and capabilities. In addition to lacking an extensive interconnected road system, Alaska also has limited electrical transmission infrastructure. Other utilities such as water and wastewater plants are primarily located only in large population centers with well service and septic systems serving the rural areas. Key elements of the proposed actions and other past, present, and reasonably foreseeable future actions that would affect utilities and infrastructure include primarily facility construction for ground-based activities. The scope of these proposed changes would not be expected to substantially affect current utilities capacity in the ROI. Incremental effects of the proposed action, which are minor, would not be expected to have significant impacts or contribute to adverse cumulative impacts on utilities resources in the region. No significant increased demands on infrastructure are expected under the proposed action; therefore, no cumulative effects are anticipated. It is expected that the construction, renovation, and infrastructure improvement projects will improve access to utilities for military personnel and the public in general.

TRANSPORTATION

Transportation improvements are provided for in the Statewide Transportation Improvement Program (STIP). The STIP is guided by the Statewide Long-Range Transportation Policy Plan and covers all projected surface transportation projects, including roads, ferries, transit systems, and trails. The STIP provides a breakdown of expected projects, proposed schedules, and funding sources, and all projects in the STIP must conform to the Statewide Long-Range Transportation Policy Plan. The current 4-year

STIP (2012–2015), currently being reviewed, covers dozens of upgrade and repair projects in the ROI (Alaska Department of Transportation and Public Facilities [ADOT&PF] 2011-1). These plans are updated at least every 4 years, but can be updated more frequently.

Using 2030 forecast traffic volumes, the Alaska Department of Transportation conducted a comprehensive roadway capacity evaluation for all of the major rural highways. A planning-level assessment based on the existing highway characteristics and 2030 traffic forecasts revealed no major roadway capacity constraints. Under long-term conditions, all roadway facilities within the area currently under consideration will continue to operate at a Level of Service (LOS) C or better, with most facilities forecast to operate at LOS A and B (ADOT&PF 2010-1). Based on the future traffic operations assessment, which assumes moderate annual growth in highway traffic, traffic volumes would have to double or even triple on average in order to impact the capacity needs in the system (ADOT&PF 2010-1). Given the past, present, and reasonably foreseeable future actions considered herein, this is unlikely to occur. The proposed action is not expected to contribute to cumulative impacts on transportation. In the past, aircraft accidents occurring in remote areas led to the need for roads to be created to access crash sites. Although these roads can cause impacts to the environment, they are expected to remain infrequent in nature and impacts can be mitigated on a case-by-case basis.

The Northern Rail Extension involves the construction and operation of approximately 80 miles of new rail line from North Pole, Alaska, to Delta Junction, Alaska (See [Figure 1-1](#) for a map of the region). The rail extension would begin at the east end of the Chena River Overflow Bridge—north of Eielson AFB—and end at the southern side of Delta Junction. The project includes new structures, such as bridges, a passenger facility, communications towers, access roads for rail line construction and operations, and sidings. The southern portion of the proposed alignment goes through the northwest corner of the proposed R-2202 expansion for the RLOD proposal, as well as existing R-2202 (See [Figure 2-3](#)). This would require the Air Force to conduct coordination and scheduling with the Alaska Railroad Corporation to ensure that nonparticipants (e.g., trains) do not enter the weapon danger zone when RLOD training exercises are being undertaken.

Consideration of cumulative impacts on marine transportation consist of the effects of the proposed action in combination with other past, present, and reasonably foreseeable actions that would increase marine traffic or conflict the GOA region. As discussed in the Navy GOA EIS, marine vessel traffic is expected to increase in the future. The volume of cargo vessels traversing the GOA is expected to increase moderately, while the volume of tanker traffic is not expected to change substantially. Cumulative impacts on marine transportation are expected to be less than significant.

Select JPARC EIS proposed actions suggest the improvement of existing infrastructure to achieve program goals. Proposed actions that would require the upgrade of trails to permanent roads or the creation of full-use roadways replacing seasonal ice roads would provide access to areas previously unusable for large portions of the year. Likewise, in the area around DTA and the town of Delta Junction, proposed trail upgrades could have beneficial impacts in regard to public access. Public access would be improved by repairing damaged roads, thereby allowing for all-season use.

4.8.12 Socioeconomics

Aggregate Impacts of Multiple JPARC Proposed Actions. Assessment of the cumulative impacts on socioeconomics of the proposed actions, in combination with other past, present, and reasonably foreseeable future actions and processes, focuses on regional employment, income, housing, key industries, or infrastructure. Based on the socioeconomic resources available, no direct cumulative impacts on housing or infrastructure are expected, although changes in employment and income could indirectly affect housing demand or funding for infrastructure projects.

Employment and income could be substantially affected by changes in key industries. Civilian aviation in particular, is important to the economic well-being of many Alaskan residents and supports many other key industries. MFEs proposed within the ranges as a result of past, present, and future DoD actions are not expected to have a cumulative impact on civilian aviation, since it is assumed that the majority of civilian aviation pilots do not traverse the ranges and are accustomed to flight paths that generally avoid these areas. However, in areas outside the ranges, additional MFEs could cause a more frequent restriction in civilian aviation and hence result in greater cumulative costs associated with rerouting or delays. Mitigation measures, as recommended throughout Chapter [3.0](#), would minimize cumulative impacts to socioeconomic resources from changes in airspace use.

Some activities could cause temporary displacement of, and potential economic loss by, individuals. For example, activities associated with the live firing of AIM-9 and AIM-120 missiles, in addition to activities outlined in the Navy's *GOA EIS/OEIS* (Navy 2011), and the establishment of harvest strategies for groundfish fisheries in the GOA and EFH identification and conservation plans could have a cumulative impact on commercial fishermen and boaters by causing more-frequent access restrictions in certain areas of the GOA. The level of significance would depend on the duration and frequency of testing activities, the ability and cost for fisherman to reschedule or reroute their trips, and any change in the value of their catch if popular areas are inaccessible. Most military activities are short in duration and have a small operational footprint. In addition, mitigation measures such as advanced notifications would further reduce the cumulative impacts. Effects on individuals would be mitigated by recommended criteria as outlined for each resource in Chapter [3.0](#).

Cumulative Impacts of JPARC Proposals with other DoD Actions. In addition to changes in key industries, military projects involving construction and demolition could increase construction employment and activity in the region. Past, present, and future projects involving construction in the general region include the range complex training land upgrades, relocation of the ANG 176th Wing to Elmendorf AFB, DTA-East mobility and maneuver enhancements, Eielson AFB infrastructure development in support of RED FLAG–Alaska, and a railhead facility. The socioeconomic effects of construction activity from these projects, along with the construction of ISBs and road accesses outlined in JPARC EIS actions, are restricted mainly to FNSB, the Southeast Fairbanks Census Area, and the Matanuska-Susitna Borough/Anchorage area. DoD actions, in general, contribute a continual but fluctuating source of expenditures in the region (from construction and personnel), particularly for the urban areas in proximity to the primary installations. This is likely to continue in the future.

Cumulative Impacts of JPARC Proposals with other DoD and Non-Military Actions. Other economic activity in the region surrounding the Matanuska-Susitna Borough include the recent Port MacKenzie Development, the Port of Anchorage Expansion, and the potential natural gas pipeline, along with military actions involving construction and demolition, could increase the demand for construction employment in the region particularly in the Matanuska-Susitna Borough/Anchorage area. An increase in the population and employment opportunities related to an increase in port traffic to the Matanuska-Susitna area could have a beneficial socioeconomic impact; however, a larger percentage of the population—i.e., people residing under the airspace of the Fox 3/MOA Expansion Proposed Action—could be exposed to adverse impacts. A change in population that would create a greater need for civilian aviation could also have cumulative impacts, for more frequent and greater restrictions in airspace use would impact a greater percent of the population. Overall, an increase in economic activity associated with a specific project is typically temporary, lasting only for the duration of the construction period; however, the cumulative impacts of construction projects create employment for the foreseeable future.

4.8.13 Subsistence

Aggregate Impacts of Multiple JPARC Proposed Actions. Proposals that in combination could have a cumulative impact on subsistence resources include the urban target set construction, the high-angle mountain marksmanship range, and helicopter gunnery. These proposals have suggested locations in DTA, which is also proposed for RLOD, the JAGIC, ISBs, and an enhanced ground maneuver area. DTA is within a State nonsubsistence area, as described in Section [3.2.13.1](#). Therefore, subsistence resources are not harvested or managed for State or private lands. However, the DTA is also within an area where Federal subsistence is permitted. Additional range activities and restrictions of public access to areas in DTA could further restrict subsistence activities where they are currently permitted. However, there are areas in the vicinity of the DTA that can also provide subsistence resources and are more accessible than a military installation. Therefore, no significant restrictions of subsistence resources overall is expected from these cumulative actions.

Cumulative Impacts of JPARC Proposals with other DoD and Non-Military Actions. No significant restrictions of subsistence resources are expected from the cumulative effects of the JPARC proposed action, other DoD actions, and non-DoD actions. The areas of DoD action listed in [Table 4-2](#) currently experience levels of military activity, and subsistence resources continue to be harvested in parts of those areas that are not also State nonsubsistence areas or Federal nonrural areas. The non-DoD actions listed in [Table 4-3](#) are not expected to directly interact with the JPARC proposed actions in such a way as to restrict subsistence harvests or affect the distribution of subsistence resources. The Bureau of Land Management's (BLM) RMP and related EIS for the Eastern Interior is not expected to affect subsistence resources, as the RMP would not affect the amount of harvest limits, open seasons, or other aspects of subsistence hunting. Ground disturbance from the JPARC proposals would be conducted within military-controlled land and would not interact with current mining operations; therefore, no cumulative impacts to subsistence are expected from the JPARC proposals and ongoing mining exploration.

4.8.14 Environmental Justice

For most resources evaluated above, no cumulative impacts were identified and in addition, no need for additional or more detailed study of potential impacts or topics was identified. The following resources would not have cumulative impacts and would not cause disproportionately high and adverse human health or environmental effects on minority and low-income populations or children: ground safety, air quality, physical resources, water resources, hazardous materials and waste, infrastructure and transportation. These resources are not addressed further.

Aggregate Impacts of Multiple JPARC Proposed Actions. Each of the JPARC programmatic proposals, including EGMS, TFTA, JAGIC, ISBs, Missile Live-Fire, and JPADS, will require further study of cumulative impacts and disproportionately high and adverse environmental or health effects when definitive sites and operations are evaluated in tiered environmental studies. For these actions, disproportionate effects are therefore not known.

Resources that have the potential to create direct or inter-related cumulative impacts on human/social resources or for which additional study or consultation would be needed to identify cumulative impacts, have the potential to create disproportionate effects and are therefore addressed below: airspace management and use, noise, biological resources, cultural resources, land use, socioeconomics, and subsistence.

Cumulative impacts on airspace management (Section [4.8.1](#)) due to restrictions on civilian IFR and VFR traffic would not have disproportionate effects but may have inter-related impacts on human/social resources.

Cumulative noise impacts (Section [4.8.2](#)) would occur in areas where the twelve JPARC proposed actions overlap, but would not be expected to be significant and would not create disproportionate effects.

Although biological resource impacts (Section [4.8.8](#)) from JPARC definitive and programmatic projects affecting DTA may be less than significant on an individual basis given application of mitigation and established resource-protective BMPs and SOPs, collectively the direct and indirect impacts on biological resources would be substantial within portions of DTA and the site-specific impacts cumulatively significant. Cumulative biological impacts could inter-relate with human/social resources but would not result in disproportionate effects.

For land use (Section [4.8.10](#)), several actions would increase the use of military land and associated restricted airspace for both hazardous and non-hazardous training, particularly on DTA-West, DTA-East, YTA, and TFTA. Cumulatively these would result in less time available for non-military uses throughout the JPARC training areas from about 80 percent down to less than 50 percent annually. Continuation of current Army practices such as adjusted training schedules to allow public access to safe training areas during the month of September when hunting is most popular and a coordinated and comprehensive public use scheduling plan would serve to limit impact on locally important land use and recreational opportunities on military lands. Such actions would reduce the potential for cumulative land use impacts and any related disproportionate effects.

With regard to land use impacts from ground-based activities, future proposals should evaluate any expansion of noise exposure greater than 62 dB CDNL and peak exposure above 115 dB outside of military land, particularly if they involve new types of munitions or increased expenditures. If noise impacts to human/social resources were projected to occur, an environmental justice evaluation would be needed.

Subsistence impacts (Section [4.8.13](#)) related to IFR and VFR flight limitations on civilian aircraft traffic are projected for the Expanded Fox 3 MOA and New Paxon MOA proposal and the RLOD proposal, which would in turn be associated with disproportionate effects on minority and low-income populations in Alaska Native tribes with High subsistence rankings (Sections [3.1.13](#) and [3.2.13](#)). These impacts combined with other JPARC and Master Plan actions would not create or contribute to cumulative impacts and therefore would not be associated with disproportionate effects.

JPARC proposals that involve construction or use of the DTA (RLOD, JAGIC, ISB, and Enhanced Ground Maneuver Area) have the potential to interact with each other and create a cumulative impact to subsistence resources. DTA is located within an area where Federal subsistence is permitted. No significant restrictions to subsistence resources are expected from these cumulative actions given access to other subsistence resources in the vicinity of DTA and no disproportionate effects on minority or low-income populations are therefore anticipated to occur.

Assessment of the cumulative impacts on socioeconomics (Section [4.8.12](#)) of the proposed actions focuses on regional employment, income, housing, key industries, or infrastructure. Based on the socioeconomic resources available, no direct cumulative impacts on housing or infrastructure are expected, although changes in employment and income could indirectly affect housing demand or funding for infrastructure projects. Cumulative socioeconomic impacts would not result in disproportionate effects.

For cultural resources (Section [4.8.9](#)), although no cumulative impacts are identified, JPARC actions have greater potential to result in impacts to traditional cultural resources and present activities if sites or routes include areas historically or currently used by Alaska Native peoples. If government-to-government consultation with Alaska Natives and Tribal governmental entities for the JPARC actions identifies areas where traditional cultural resources or current Alaska Native activities or practices would be adversely

affected, environmental justice issues could arise. However, because JPARC and other Federal actions are subject to compliance with NHPA Section 106, adverse cultural resource effects would be mitigated to an acceptable level for each individual proposal under these regulations, and therefore, disproportionate effects on Alaska Natives are not anticipated from cumulative impacts.

Cumulative Impacts of JPARC Proposals with other DoD and Non-Military Actions. NEPA documents addressing the DoD cumulative actions listed in [Table 4-2](#) generally identify no environmental justice effects or if environmental justice effects are identified they would not interact substantially with JPARC actions. For DoD actions, joint-DoD-civilian, and civilian actions that have not yet undergone NEPA analysis, some of which are addressed in long range planning documents, it is not possible at this time to determine the level of impacts associated with these potential actions. Also, some are not sufficiently well-defined to allow accurate prediction of the level of cumulative impacts when combined with the proposed actions.

For most resources, JPARC EIS actions plus DoD and non-DoD actions would not create or contribute to significant cumulative impacts and would therefore not be associated with disproportionate effects on minority and low-income populations or children. Only selected resources are therefore evaluated below.

For noise resources (Section [4.8.2](#)), actions that may or may not be taken based on the findings of USARAK Range and Training Land Program Development Plan are not yet ripe for NEPA analysis, and it is not possible at this time to determine the level of noise impacts associated with these potential actions or their cumulative impacts with JPARC actions. Similarly, if F-35 aircraft were to be bedded down at an installation in Alaska, noise impacts would be dependent on the number of aircraft and how those aircraft would operate. Future analysis would be needed to determine the location of any noise impacts outside of military land and any land uses or populations affected. An evaluation of environmental justice impacts would be needed for cumulative noise impacts if there are associated human/social effects.

For cultural resources (Section [4.8.9](#)), although no cumulative impacts have been identified for the combined JPARC actions and other DoD or non-DoD actions, government-to-government consultation has already been initiated to identify potential impacts and any mitigations needed to avoid, minimize, or reduce impacts to acceptable levels. Therefore disproportionate effects are not anticipated.

For socioeconomic (Section [4.8.12](#)), establishment of harvest strategies for groundfish fisheries in the GOA and other conservation measures and plans have the potential to interact with the JPARC Missile Live-Fire proposal with regard to commercial fishing impacts. Additional fishing restrictions in sensitive habitats in the GOA along with restrictions in access during military activities could result in cumulative impacts to commercial fisherman. The level of significance would depend on changes in overall changes in expenditures and the value of the catch. Assuming that employment of minority and low-income populations in commercial fishing in the GOA is reasonably representative of populations residing in the area, cumulative impacts to commercial fishing would not result in disproportionate effects.

The areas associated with DoD actions listed in [Table 4-2](#) currently experience levels of military activity and subsistence resources continue to be harvested in those areas that are not State nonsubsistence areas or Federal nonrural areas. The non-DoD actions listed in [Table 4-2](#) are not expected to directly interact with the JPARC actions in such a way as to restrict subsistence harvests or affect the distribution of subsistence resources. The BLM RMP and related EIS for the Eastern Interior is not expected to affect subsistence resources as the BLM would not affect the amount of harvest limits, open seasons, or other aspects governing subsistence hunting. No significant restrictions to subsistence resources are expected from the cumulative effects of the JPARC proposed action, other DoD actions, and non-DoD actions and therefore no disproportionate effects on minority or low-income populations would occur.

Chapter 5
Other Considerations Required by the
National Environmental Policy Act

5.0 OTHER CONSIDERATIONS REQUIRED BY THE NATIONAL ENVIRONMENTAL POLICY ACT

5.1 CONSISTENCY WITH OTHER FEDERAL, STATE, AND LOCAL PLANS, POLICIES AND REGULATIONS

Based on an evaluation with respect to consistency with statutory obligations, the Environmental Impact Statement (EIS) proponents (i.e., the Air Force and Army) of the proposals in the *Joint Pacific Alaska Range Complex (JPARC) Modernization and Enhancement EIS* have sought input from the various Federal, State, and local agencies with management responsibilities in the affected region. Implementation of JPARC actions will incorporate measures to address concerns and management priorities of these agencies to minimize conflicts with plans, policies, or legal requirements. Specifically, each of the six definitive proposals has been adequately and accurately evaluated in the EIS based on the most current information available. The EIS process has provided Federal, State, and local agencies the opportunities to review and comment on these proposals, and requisite coordination and consultation have been undertaken. [Table 5-1](#) provides a summary of environmental compliance requirements that may apply to these proposals and how these have been achieved. Since decisions to implement the programmatic proposals are not outcomes of this EIS, the table focuses only on the proposals that can progress to implementation following the Record of Decision (ROD) on this EIS.

Table 5-1. Summary of Regulatory Compliance of the JPARC EIS

Plans, Policies, and Controls	Responsible Agency	Status of Compliance
National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] 4321 <i>et seq.</i>) Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500–1508) Army (32 CFR 651) and Air Force (32 CFR 989 <i>et seq.</i>) regulations for NEPA implementation	Alaskan Command (ALCOM), Army, Air Force, U.S. Army Alaska (USARAK)	Air Force inland Special Use Airspace (SUA) and the Army training lands are analyzed under previous NEPA documentation (the <i>Final Alaska Military Operation Areas EIS</i> [Air Force 1997-1], <i>Improvements to Military Training Routes in Alaska Environmental Assessment</i> [Air Force 2007-3], <i>Alaska Army Lands Withdrawal Renewal Final Legislative EIS</i> [USARAK 1999-1], and the <i>Transformation of U.S. Army Alaska Final Environmental Impact Statement (FEIS)</i> [USARAK 2004-1]). Table 1-1 in this EIS provides a full list of NEPA documents and decisions incorporated by reference. Public participation and review of this EIS are being conducted in compliance with NEPA.
Federal Water Pollution Control Act (Clean Water Act [CWA]) (33 U.S.C. 1344 <i>et seq.</i>)	ALCOM, Army, Air Force, USARAK	No permits are required under CWA sections 401, 402, or 404 (b) (1), for six definitive proposals in the EIS. Programmatic proposals considered in this EIS will require further analysis and will pursue permitting under CWA as needed.

Table 5-1. Summary of Regulatory Compliance of the JPARC EIS (Continued)

Plans, Policies, and Controls	Responsible Agency	Status of Compliance
Coastal Zone Management Act (CZMA) (16 CFR 1451 <i>et seq.</i>)	Air Force, Alaska Department of Fish and Game	None of the six definitive proposals overlap with coastal zones. The proponent for Missile Live Firing in the Gulf of Alaska will undergo consistency review and approval in the future, as specified by the Alaska Department of Fish and Game (ADFG).
Endangered Species Act (ESA) (16 U.S.C. 1531 <i>et seq.</i>)	U.S. Fish and Wildlife Service (USFWS); NOAA Fisheries Service/National Marine Fisheries Service (NMFS)	None of the definitive projects in this EIS involve effects on endangered or threatened species because no listed species occur within the action areas of these projects. Therefore, no consultation with USFWS regarding listed species is required for definitive projects. ESA-consultation and coordination with USFWS and NMFS will be conducted with regard to programmatic projects that may involve effects on endangered or threatened species as planning proceeds.
Marine Mammal Protection Act (MMPA) (16 U.S.C. 1431 <i>et seq.</i>)	NMFS	Marine mammals are not affected by the definitive proposals as they are outside the area of operations and potential effects.
The Sikes Act of 1960 (16 U.S.C. 670a–670o, as amended by the Sikes Act Improvement Act of 1997, Public Law No. 105-85)	USARAK	USARAK has considered the potential impact of proposed operations on non-military activities, as well as use of resources on military lands, and will continue to manage with the goals of maintaining maximum public access and use to the extent possible, alongside the primary purpose of the military mission.
National Historic Preservation Act (NHPA) (16 U.S.C. 470 <i>et seq.</i>)	USARAK, Air Force, ALCOM	USARAK and ALCOM has begun Section 106 consultation with the Alaska State Historic Preservation Officer (SHPO) and will implement all mitigations as documented in this EIS.
Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations	USARAK, Air Force	The EIS proposals would not result in any disproportionately high adverse human health or environmental effects on minority or low-income populations.
EO 13045, Protection of Children from Environmental Health Risks and Safety Risks	USARAK, Air Force	The EIS proposals would not result in environmental health and safety risks to children.
Alaska Native Claims Settlement Act of 1971 (ANCSA) (43 U.S.C. 1601–1624)	ADFG, U.S. Department of the Interior Bureau of Land Management (BLM), USARAK, Air Force	ALCOM is consulting on a government-to-government basis with ANCSA corporations whose lands are within the ROI for the proposed action(s), pursuant to H.R. 2673: Consolidated Appropriations Act, 2004 and H.R. 4818, the Consolidated Appropriations Act, 2005, and EO 13175.

5.0 – Other Considerations Required by the National Environmental Policy Act
5.1 Consistency With Other Federal, State, and Local Plans, Policies and Regulations

Table 5-1. Summary of Regulatory Compliance of the JPARC EIS (Continued)

Plans, Policies, and Controls	Responsible Agency	Status of Compliance
Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703–712)	USFWS	The USFWS has developed mitigation recommendations for timing of vegetation clearing activities within Alaska with regard to compliance with the MBTA. For programmatic projects involving on-the-ground construction, compliance with these measures should assure avoidance or reduction of adverse effects to nests and nestlings of breeding bird species. For example, conducting necessary pre-construction vegetation clearing prior to, or after the nesting season.
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d)	USFWS	Consultation and coordination have been initiated with the USFWS regarding bald and golden eagles. Compliance will include bald and golden eagle nest surveys in proposed Fox 3 and Paxon MOAs over previously unsurveyed areas. USFWS coordination will address any permits required for eagle take if such a take, including disturbance, is deemed a likely result of any of the proposals. Please refer to the Mitigations in Section 3.1.8.4 for measures developed to reduce the potential effects of low overflights on nesting eagles and other wildlife.
EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance	USARAK, Air Force	The definitive proposals would not appreciably increase energy or water consumption (with no proposed personnel or heated space increase), and would benefit fuel efficiency through strategic location of training airspace in relation to staging bases.

Key: ADFG=Alaska Department of Fish and Game; Air Force=U.S. Air Force; ALCOM=Alaskan Command; ANCSA=Alaska Native Claims Settlement Act; Army=U.S. Army; BLM=U.S. Department of the Interior Bureau of Land Management; CEQ=Council on Environmental Quality; CFR=Code of Federal Regulations; CWA=Clean Water Act; CZMA=Coastal Zone Management Act; EO=Executive Order; ESA=Endangered Species Act; FEIS=Final Environmental Impact Statement; H.R.=House Resolution; MBTA=Migratory Bird Treaty Act; MMPA=Marine Mammal Protection Act; NEPA=National Environmental Policy Act; NHPA=National Historic Preservation Act; ROI=Region of Influence; SHPO=State Historic Preservation Officer; SUA=Special Use Airspace; USARAK=U.S. Army Alaska; USFWS=U.S. Fish and Wildlife Service.

Further description of agency coordination and consultation, as well as the NEPA process for this Environmental Impact Statement (EIS) are provided in Chapter [1.0](#); the relevant resource analyses are provided in Chapter [3.0](#).

5.1.1 Relationship between Short-Term Uses and Long-Term Productivity

Council on Environmental Quality (CEQ) regulations (Section 1502.16) specify that environmental analysis must address “...the relationship between short-term uses of man’s environment and the maintenance and enhancement of long-term productivity.” “Environment” generally refers to natural resources, including minerals, energy, land, water, forestry, and biota. Special attention should be given to impacts that narrow the range of beneficial uses of the environment in the long term, or that pose a

long-term risk to human health and safety. This section evaluates the short-term uses of the proposal, compared to the long-term productivity derived from not pursuing the proposal.

Short-term effects to the environment are generally defined as direct consequences of a project in its immediate vicinity. For actions involving airspace changes and air operations only (Fox 3 Military Operations Area (MOA) Expansion, Paxon MOA Addition, Night Joint Training [NJT] and Unmanned Aerial Vehicle [UAV] Roadway Access), short-term effects could include localized disruptions and higher noise levels in some areas. These direct impacts are assessed in Chapter 3.0 of the EIS. For JPARC, most aircraft-related impacts are short-term, temporary, and could stop without causing permanent changes. Noise effects are short-term and would not be expected to result in permanent or long-term changes in wildlife or habitat use. Charting new airspace is an aeronautical action and would not cause long-term change in underlying land use. Continued use of chaff and flares for training and major flying exercises (MFEs) would not negatively affect the long-term quality of the land, air, or water.

JPARC proposals involving firing of weapons and associated air operations (such as the Realistic Live Ordnance Delivery [RLOD], Battle Area Complex [BAX] Restricted Airspace (R-), Expansion of R-2205), mostly use existing targets and impact areas. With the minor exception of establishing two small temporary target areas within existing training areas on DTA-West for the RLOD and a mortar range for the BAX, none of the definitive proposals would convert additional land (or water) from its current use into new impact areas. Minor infrastructure upgrades associated with the RLOD, BAX Restricted Area expansion, and R-2205 Expansion proposals, would occur in areas that support military uses and have existing modifications to support ongoing military activities. The requirement to control access to non-military land for the RLOD capability would impact access and near-term productivity of the affected non-military areas, but would not change any intrinsic qualities of the land and long-term productivity (to support wildlife and all existing uses). Overall, the six definitive proposals involve little physical development that could displace and convert land from its current or planned use. As such little change to long-term productivity is anticipated from implementing the definitive proposals.

However, some of the programmatic proposals involve development of infrastructure on the ground, or intensive ground training activities, such as the Intermediate Staging Bases (ISB), Enhanced Access to Ground Maneuver Space, and access roads to Tanana Flats Training Area. These actions would use land that is mostly natural and undeveloped, and this could result in long-term change in the use and productivity of the affected land. New roads and trails on military land may provide some long-term benefits for range management and public access for recreation, hunting, and subsistence resource harvesting. These actions will undergo further evaluation and review.

5.1.2 Irreversible and Irrecoverable Commitment of Resources

NEPA CEQ regulations require environmental analyses to identify "...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented" (40 CFR 1502.16). Primary **irreversible** effects result from permanent use of a nonrenewable resource such as minerals or energy (i.e., consumed so that it is not available for future generations). **Irrecoverable** resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action. Examples include disturbance and degradation of sensitive habitat such as wetlands or a cultural site, or consumption of renewable resources that require a long time or large investment to recover (such as removal of old growth forests or large scale construction in wetlands). Nonrenewable resources are those resources that cannot be replenished by natural means, including oil, natural gas and iron ore. Renewable natural resources are those resources that can be replenished by natural means, including water, lumber and soil.

Military training necessarily involves consumption of nonrenewable resources, such as jet and vehicle fuel, for air and ground vehicles. The JPARC proposals involving changes in airspace and air operations

5.0 – Other Considerations Required by the National Environmental Policy Act
5.1 Consistency With Other Federal, State, and Local Plans, Policies and Regulations

(i.e., Fox 3 MOA Expansion, new Paxon MOA, NJT, and UAV Access), would not consume minerals or additional energy. Several land-based radio and radar facilities will, however, be required by the expanded Fox 3 MOA/new Paxon MOA proposal, and they will use fuel and resources, although not to a degree considered significant. Any noise effects on underlying land uses are reversible with suspension of the noise-generating flight operations. Training operations would use equivalent fuel volumes to produce improved local training, as compared with the No Action Alternative. Military energy consumption under the No Action Alternative would be expected to be comparable to any of the action alternatives, as several actions are designed to conserve fuel allocated to units for training by reducing the volume of fuel expended in transit.

There is potential to increase the consumption of jet fuel by commercial carriers if changes in Special Use Airspace (SUA) interfere with commercial traffic. Commercial and general aviation aircraft diversion on an average day could result in increased distance traveled and increased fuel consumption. No irreversible or irretrievable effects are expected for cultural resources or other natural resources, including land and water.

Training operations would involve consumption of essentially the same amount of nonrenewable resources and commitment of resources for munitions and chaff and flares for the JPARC definitive proposals as under existing conditions. New capabilities to support weapons training with longer firing distances will not in itself stimulate additional manufacturing of these products. Considering those factors, the proposals would not significantly decrease the availability of minerals or petroleum resources or result in a substantial irreversible or irretrievable commitment of resources.

Proposals involving weapons releases and new targets in existing impact areas may add slightly to the accumulation of unexploded ordnance (UXO), some of which may not be retrievable due to the character of the landscape. Since these actions would use existing impact areas (with the exception of about 2 acres in north DTA-West), they would not expand areas that are irreversibly committed to supporting weapons training. Physical development and ground disturbance is spatially limited for the six definitive proposals, so the potential for irreversible change to the surface (affecting soils, vegetation, hydrology, cultural sites) and subsurface resources (such as cultural sites, underground infrastructure, or minerals) is minimal. The use of land as a surface danger zone to support weapons firing is fully reversible with the cessation of the activity and imposes no direct loss of productivity.

Projects involving development of infrastructure would use energy (fuels, electricity) and materials for components of new facilities. These would be consumed and not retrievable or reversible; however, very small amounts would be needed to implement the definitive proposals. Clearing small areas for new target areas or firing ranges would remove native vegetation and/or wildlife habitat, and have the potential to disrupt bird nesting activities. These minor modifications would occur within training areas already used for similar purposes, this loss of resources would not be expected to adversely affect native species and is very limited in extent. These areas could be revegetated when no longer needed as target areas; therefore, effects may be reversible.

For the programmatic proposals, construction for new staging bases would consume some additional energy to heat and maintain facilities. Construction of facilities, roads, and trails would disturb vegetation and habitats and could cause permanent loss of some fragile or sensitive habitats (such as wetlands or riparian areas). Construction of the ISBs would likely convert natural land into developed land. The value of these areas to support wildlife may be impacted in the long term, although restorative efforts could retrieve some of their natural functional quality within the developed area. These issues would undergo further evaluation and mitigations before decisions are made to implement them.

Secondary impacts to natural resources could occur from air operations, for example, in the unlikely event of an accident and/or fire; however, while any fire can have short-term impacts to agricultural resources,

wildlife, and habitat, the fire's effects are not irreversible in a natural environment. Any increased risk of fire hazard due to JPARC operations would be very low.

The indirect effects of aircraft overflight on wildlife behavioral activities have also been known to occur in some circumstances, causing irreversible shifts in their patterns. Coordination with the U.S. Fish and Wildlife Service for the JPARC proposals is ongoing and will identify appropriate permits, or permit extensions, and measures to avoid, reduce, and mitigate for potential effects to wildlife. These permits may allow some degree of disturbance to, for example, bald eagles, if overall populations are not adversely affected.

5.1.3 Energy Requirements and Conservation Potential of Alternatives and Mitigation Measures

Only minimal additional energy use would be required for any of the activities under the definitive proposals. As part of Department of Defense (DoD) policy and directives for operations at every level, the use of energy resources is minimized wherever possible, without compromising safety or training activities. No additional conservation measures related to direct energy consumption by the proposed activities have been identified.

5.1.4 Natural or Depletable Resource Requirements and Conservation Potential of Various Alternatives and Mitigation Measures

Resources that will be permanently and continually consumed for military uses at the JPARC include water, electricity, natural gas, and fossil fuels; however, the amount and rate of consumption of these resources would not appreciably change under the six definitive proposals, and would not result in significant environmental impacts, or the unnecessary, inefficient, or wasteful use of resources. The proposal to expand the Fox 3 MOA, and create the Paxon MOA is intended, in part, to maximize effective fuel allocations to training units, providing more efficient use of resources. Pollution prevention is an important component of existing management practices and mitigation of adverse impacts. These existing pollution prevention considerations are included for all the proposals (see Appendix K, *Mitigations, Best Management Practices, Standard Operating Procedures*, for further information on existing measures and mitigations).

Sustainable range management practices are in place that protect and conserve natural and cultural resources and preserve access to training areas for current and future training requirements while addressing potential encroachments that threaten to impact range and training area capabilities. These practices include monitoring to track changes in water quality and habitat trends resulting from ongoing, new, or increased military operations so range natural resource management may adapt restorative actions and set limits on appropriate levels of activities for different locations.

Chapter 6

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U.S. Department of the Air Force

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U.S. Army Pacific (USARPAC)

U.S. Pacific Air Forces (PACAF)

U.S. Army Alaska (USARAK)

11th Air Force

Alaskan Command

Alaska National Guard

U.S. Army Environmental Center (AEC)

U.S. Air Force Center for Engineering and the Environment

U.S. Army Installation Command, Pacific Region (IMCOM)

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Chapter 9

Glossary

9.0 GLOSSARY

above ground level (AGL): Altitude expressed in feet measured above the ground surface.

Air Force Instruction (AFI): Air Force Instructions implementing United States laws and regulations, and providing policy for Air Force personnel and activities.

air-to-air training: Air-to-air training prepares aircrews to achieve and maintain air superiority over the battlefield and defeat enemy aircraft. Air-to-air training often includes some aircraft playing the role of adversaries, or enemy forces. Air-to-air training activities include advanced handling characteristics, air combat training, low-altitude air-to-air training, air intercept training, and the use of defensive countermeasures, such as chaff and flares.

air-to-ground training: Air-to-ground training employs all the techniques and maneuvers associated with weapons use and includes low- and high-altitude tactics, navigation, formation flying, target acquisition, and defensive reaction. Training activities include surface attack tactics, different modes of weapons delivery, electronic combat training, and the use of defensive countermeasures, such as chaff and flares.

air traffic: Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

Air Traffic Control (ATC): A service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

Air Traffic Control Assigned Airspace (ATCAA): Airspace of defined vertical/lateral limits, assigned by ATC, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic.

Alluvial fan: Fan-shaped deposits of water-transported material (alluvium). They typically form at the base of topographic features where there is a marked break in slope.

Anadromous: Generally refers to a fish species that is born in fresh water, spends most of its life in the sea and returns to fresh water to spawn. Salmon, smelt, shad, striped bass, and sturgeon are common examples.

Annual Average Daily Traffic (AADT): Represents an estimate of the number of vehicles traveling along a given point on a highway on an average day in the year. Most traffic counts are reported in AADT.

Asbestos Hazard Emergency Response Act (AHERA): AHERA regulates hazardous forms of asbestos, including the inspection, transport, disposal, and post-remediation surveillance of asbestos-related activities.

avoidance areas: Defined areas that are avoided by specified lateral or vertical distances during training events; often designated to avoid or reduce noise impacts.

Bight: A body of water bounded by a bend or curve of the seashore.

Chaff: Chaff is the term for small fibers of aluminum-coated mica packed into approximately 150 gram bundles and ejected by aircraft as a self-defense measure to reflect hostile radar signals.

Clean Air Act (CAA): This Act empowered the U.S. Environmental Protection Agency to establish standards for common pollutants that represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety to protect public health and safety.

Close Air Support: Air action by fixed- or rotary-winged aircraft against hostile targets that are close to friendly forces and which requires detailed integration of each air mission with fire and movement of these forces.

Combined arms training: Combined arms training integrates the effects and capabilities of combat, combat support, and combat service support units in training conditions that replicate battlefield conditions. This integration of units in a synchronized operation characterizes the Army's doctrine of how to fight.

Community Environmental Response Facilitation Act of 1992 (CERFA) (42 USC 9620): This act amended CERCLA, requiring agencies to identify real property where hazardous wastes were stored, released, or disposed of prior to the Federal Government terminating its activities on property it owns.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): CERCLA (also known as Superfund) addresses the management of existing contaminated sites and acts as the governing regulation of remediation practices. CERCLA oversees remediation actions for contaminated or potentially contaminated sites by requiring investigation, assessment, and development of remediation programs to contain contamination. CERCLA includes removal of hazardous substances for emergency response and long-term monitoring of contamination levels at applicable sites.

Council on Environmental Quality (CEQ): The Council is an Executive Office of the President composed of three members appointed by the President, subject to approval by the Senate. Members are to be conscious of and responsive to the scientific, economic, social, esthetic, and cultural needs of the nation and to formulate and recommend national policies to promote the improvement of quality of the environment.

C-Weighted Day-Night Average Sound Level (CDNL): A day-night average sound level computed for areas subject to impulsive noise such as sonic booms. Areas subjected to supersonic noise are typically also subjected to subsonic noise, which is assessed based on the L_{dnmr} metric.

Day-Night Average Sound Level (DNL): Day-Night Average Sound Level is a noise metric combining the levels and durations of noise events and the number of events over an extended time period. It is a cumulative average computed over a 24-hour period to represent total noise exposure. DNL also accounts for more intrusive nighttime noise, adding a 10-decibel penalty for sounds after 10:00 p.m. and before 7:00 a.m. DNL is the FAA's primary noise metric. FAA Order 1050.1E defines DNL as the yearly day/night average sound level.

decibel: Logarithmic unit of measure used to describe the intensity of sound.

dropsonde: An information-gathering device designed to be dropped from an aircraft at altitude. Dropsonde can contain a global positioning system (GPS) receiver, along with pressure, temperature, and humidity sensors to capture atmospheric profiles and thermodynamic data. It typically relays these data to

a computer in the aircraft by radio transmission. The device's descent is usually slowed by a parachute, allowing for more readings to be taken before it reaches the water beneath.

Dry Target: Sites where pilots can practice bombing tactics without releasing any ordnance.

Dud/Low Order Detonation: A dud is a round that is fired/initiated, but completely fails to function at the target. A low-order detonation is a high-explosive round that is fired/initiated, but only partially functions at the target.

Dudded Impact Area: An impact area potentially containing duds and/or low order detonations. An impact area not yet assessed and/or remediated, as determined by the DoD.

Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA): EPCRA requires emergency planning for areas where hazardous materials are manufactured, handled, or stored and provides citizens and local governments with information regarding potential hazards to their community.

Endangered Species: The Endangered Species Act of 1973 defined the term “endangered species” to mean any species (including any subspecies of fish or wildlife or plants, and any distinct population segment of any species or vertebrate fish or wildlife which interbreeds when mature) that is in danger of extinction throughout all or a significant portion of its range.

Environmental Justice: As defined by Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, review must be made as to whether an action disproportionately causes high and adverse human health or environmental effects on minority and/or low-income populations.

Federal land: Land owned and managed by the U.S. Federal government. game management unit: Administrative subdivisions of Alaskan State lands by the Alaska Department of Fish and Game for the purpose of managing hunting and game resources.

Fire Weather Index: The fire weather index is a tool that meteorologists use to estimate the wildfire risk in forested regions. Calculation of the index is based on consecutive daily observations of factors such as temperature, relative humidity, wind speed and 24-hour rainfall. Based on these factors, a numerical rating is generated that may be used as a general index of fire danger.

Flares: A device that produces a bright light for signaling, illumination, or identification.

Flight Level: The flight level (FL) refers to the altitude above mean sea level (MSL). FL230, for example, is approximately 23,000 feet MSL.

frequency weighting: Application of weighting to noise energy in specific frequency bands to yield noise levels that correspond to a phenomenon of interest, such as human hearing.

Hazardous Materials/Hazardous Waste: substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Solid Waste Disposal Act (SWDA), as amended by the Resource Conservation and Recovery Act (RCRA) or the Toxic Substances Control Act. In general, hazardous materials include substances that, based on quantity, concentration, or characteristics (physical, chemical, or infectious), may present substantial danger to public health or the environment when released into the environment. Hazardous wastes regulated under RCRA are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that exhibit one

or more of the hazardous characteristics of ignitability, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR 261

Historic Property: Significant archaeological, architectural, or traditional resources that are listed or eligible for listing on the National Register of Historic Places (as defined in the National Historic Preservation Act [16 U.S.C. 470*et seq.*] and in 36 CFR 800).

Home Station Training: Individual and crew weapons proficiency training typically occurring in the local training area for continental U.S.-based active army units. Local training area facilities allow familiarization, qualification, and sustainment training with minimum impact on resources for travel to and from other types of training areas. Training focuses on individual through platoon weapons proficiency and battalion maneuver requirements. Tactical engagement simulation systems and other weapon system training simulators support maneuver and live-fire exercises.

Housing Unit: Defined by the Census as, “a single-family house, townhouse, mobile home or trailer, apartment, group of rooms, or single room that is occupied as a separate living quarters or, if vacant, is intended for occupancy as a separate living quarters” (USCB 2011-7)

hydric soils: Soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

Impact Area: The ground and associated airspace within the training complex used to contain fired or launched ammunition and explosives, and the resulting fragments, debris, and components from various weapon systems. A weapon system impact area is the area within the surface danger zone used to contain fired or launched ammunition and explosives, and the resulting fragments, debris, and components. Indirect fire weapon system impact areas include probable error for range and deflection. Direct fire weapon system impact areas encompass the total surface danger zone from the firing point or position downrange to Distance X.

a. **Temporary impact area:** An impact area within the training complex used for a limited period of time to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Temporary impact areas are normally used for non-dud-producing ammunition and explosives, and should be able to be cleared and returned to other training support following termination of firing.

b. **Dedicated impact area:** An impact area that is permanently designated within the training complex and used indefinitely to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Dedicated impact areas are normally used for non-sensitive ammunition and explosives.

c. **High-hazard impact area:** An impact area that is permanently designated within the training complex and used to contain sensitive high-explosive ammunition and explosives and the resulting fragments, debris, and components. High hazard impact areas are normally established as part of dedicated impact areas where access is limited and strictly controlled due to the extreme hazard of dud ordnance (for example, ICM, HEAT, 40-mm, and other highly sensitive ammunition and explosives.)

Impact Area, dudded: An area having designated boundaries within which all dud-producing ordnance will detonate or impact. This area may include vehicle bodies that serve as targets for artillery/mortar direct and indirect fire. Impact areas containing unexploded ordnance may not be used for maneuver.

Impact Area, non-dudded: An area having designated boundaries within which ordnance that does not produce duds will impact. This area is composed mostly of the safety fans for small arms ranges. These impact areas may be used for maneuver, at the cost of curtailing use of weapons ranges.

impulsive noise: Noises, such as clapping, banging, or thunder, that begin and end suddenly.

Inert Ordnance: Ordnance without explosive or incendiary material. This inert (non-explosive) ordnance is used by training aircrews authorized to verify that aircraft systems are functioning properly, without the use of live ordnance. Inert ordnance is only used at authorized air-to-ground training ranges

Instrument Flight Rules (IFR): A standard set of rules that all pilots, civilian and military, must follow when operating under flight conditions that are more stringent than visual flight rules. These conditions include operating an aircraft in clouds, operating above certain altitudes prescribed by Federal Aviation Administration regulations, and operating in some locations like major civilian airports. Air traffic control agencies ensure separation of all aircraft operating under IFR.

Legislatively designated areas: Land areas designated by the Alaska legislature for a special purpose or use, including refuges, sanctuaries, critical habitat areas, ranges, special management areas, forests, parks, recreation areas, preserves, public use areas, recreation rivers, and recreational mining areas.

Limited use areas: USAG-FWA lands that are open to all non-motorized recreation (hunting, fishing, trapping, hiking, skiing, and berry picking) year round but are not open to any type of Off-Road Recreational Vehicle at any time. Motorized watercraft must stay within existing open water channels.

Maximum Noise Level (L_{max}): The highest sound level measured during an event, such as a single aircraft overflight.

Mean Sea Level (MSL): Altitude expressed in feet measured above average sea level.

Median Value: refers to the middle value (if n is odd) or the average of the two middle values (if n is even) in an ordered list of data values

Military land: Land owned and managed by the Department of Defense or legislatively withdrawn from public domain a period of time (usually 20 to 50 years) for the primary purpose of supporting military purposes.

Military Munitions Response Program (MMRP): A subset of the Defense Environmental Restoration Program (DERP). The MMRP is intended to address potential explosives safety, as well as health and environmental issues caused by past DoD munitions related activities.

Military Operations Area (MOA): Airspace below 18,000 feet MSL established to separate military activities from instrument flight rule traffic and to identify where these activities are conducted for the benefit of pilots using visual flight rules.

Military Training Route (MTR): A Military Training Route is a corridor of airspace with defined vertical and lateral dimensions established for conducting military flight training at airspeeds in excess of 250 nautical miles per hour.

Mitigation: CEQ Sec. 1508.20 defines “Mitigation” to include:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

Modified use areas: USAG-FWA lands that are open to all types of off-road recreational vehicles. No restrictions for any off-road recreational vehicles when soil is frozen. All off-road recreational vehicles must stay on existing roads and trails during the summer. Motorized watercraft must stay within existing open water channels. Open to all other recreational activities year round.

Moose range: Areas classified by the Alaska Department of Fish and Game for priority management of moose habitat and populations.

Municipal land: Land patented or State land selected for municipal ownership.

Munitions: All ammunition products and components produced or used by or for DoD or the U. S. Armed Services for national defense and security. The term "munitions" includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, smokes, and incendiaries used by the DoD including bulk explosives, rockets, guided missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, cluster munitions and dispensers, demolition charges, and devices and components thereof.

National Environmental Policy Act (NEPA): The National Environmental Policy Act of 1969 directs Federal agencies to take environmental factors into consideration in their decisions.

National Historic Landmark: National Historic Landmarks are places that “possess exceptional value or quality in illustrating and interpreting the heritage of the United States” and include battlefields, architectural or engineering masterpieces, ruins, and historic towns and communities.

National Historic Preservation Act (NHPA): The NHPA of 1966, as amended, established a program for the preservation of historic properties throughout the United States.

National Register: The National Register of Historic Places maintained by the Secretary of the Interior.

Native land: Land patented or selected for Native Corporation and village ownership. The Alaska Department of Natural Resources classifies Native land as private land in its geographic information system.

Nautical Mile (NM): Equal to 1.15 statute miles.

Notice to Airmen (NOTAM): A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

Off-limits areas: Areas on USAG-FWA lands where public access is not permitted due to hazards associated with military activities on land condition.

Onset Rate-Adjusted Day-Night Average Sound Level (L_{dnmr}): A noise metric combining the levels and durations of noise events and the number of events over a 24-hour period. L_{dnmr} also accounts for more-intrusive nighttime noise, adding a 10-dB penalty for sounds after 10:00 p.m. and before 7:00 a.m. and for high onset rate noise events with potential to induce a startle reaction, adding a penalty of 0 to 11 dB.

Open use areas: USAG-FWA lands that are open to all types of off-road recreational vehicles, and open to all other recreational activities year round.

Ordnance: Military materiel such as combat weapons of all kinds with ammunition and equipment required for their use. Ordnance includes all the things that make up an aircraft's armament including guns, ammunition, and all equipment and ordnance related software needed to control, operate, and support the weapons.

permafrost: Soil that is always frozen.

PK 15(met): The peak impulsive noise levels, in decibels, generated by the most intense of one or more munitions detonation noise events on an unfavorable weather day; specifically, on a day in which weather conditions are less favorable than 85 percent of days (or more favorable than only 15 percent of days).

POLs: Petroleum, Oils, and Lubricants.

Population: All people, male and female, child and adult, living in a defined geographic area

Private land: Land owned by a private (non-governmental) entity or individual.

Productive-use: A use of land that extracts a tangible resource (e.g., minerals, timber) or produces a product (e.g., agriculture).

Public access: Access for non-military use on military land.

Range: A designated land or water area that is set aside, managed, and used for range activities of the Department of Defense. The term includes firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, electronic scoring sites, buffer zones with restricted access, and exclusionary areas. The term also includes airspace areas designated for military use in accordance with regulations and procedures prescribed by the Administrator of the Federal Aviation Administration (Title 10 USC 101(e)(1)(A) and (B)).

Region of Influence (ROI): The geographic area of interest or influence that is being evaluated for a particular resource.

Renewable energy: Energy that is produced by a naturally recurring and continuous source such as the sun, wind, waves.

Resource Conservation and Recovery Act (RCRA): RCRA is relevant to the management of hazardous waste from point of generation to its disposal. RCRA requirements include the tracking and storage of hazardous waste and the enforcement of safe management practices. The main focus of RCRA is to prevent the release of petroleum products and hazardous substances.

Restricted Areas: A restricted area is designated airspace that supports ground or flight activities that could be hazardous to nonparticipating aircraft.

Revised Statute (RS) 2477 trails: These trails, throughout Alaska, follow rights-of-way over Federal land. The Mining Act of 1866 granted unrestricted right-of-way over Federal land that had no existing reservations or private entries for the purpose of constructing highways. In the case of Alaska, this included trails. In 1976, this law was repealed but pre-existing rights-of-way in effect up through 1976 remained in effect.

Surface danger zone (SDZ): The ground and airspace designated within the training complex (to include associated safety areas) for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems to include explosives and demolitions.

See-and-avoid: When weather conditions permit, pilots operating IFR or VFR are required to observe and maneuver to avoid other aircraft. Right-of-way rules are contained in Federal Aviation Regulations Part 91.

soil: A natural body consisting of layers (soil horizons) of primarily mineral constituents of variable thicknesses, which differ from the parent materials in their morphological, physical, chemical, and mineralogical characteristics.

Sonic Boom: A sonic boom is the impulsive noise created when a vehicle flies at speeds faster than sound.

Sortie: A sortie is a single flight, by one aircraft, from takeoff to landing.

Sortie-Operation: The use of one airspace unit (e.g., Military Operations Area or Warning Area) by one aircraft. The number of sortie-operations is used to quantify the number of uses by aircraft and to accurately measure potential impacts (e.g., noise, air quality, and safety impacts). A sortie-operation is not a measure of how long an aircraft uses an airspace unit, nor does it indicate the number of aircraft in an airspace unit during a given period; it is a measurement for the number of times a single aircraft uses a particular airspace unit.

Sound Exposure Level (SEL): A noise metric in which all noise energy of an event is normalized to one second. The SEL accounts for the maximum sound level of an event and the length of time that an event lasts.

Special use area(s): Areas that are defined by the managing entity for a special use or interest, usually due to particular qualities, resources, or value to the public at large.

Spill Prevention, Control, and Countermeasure (SPCC): The SPCC Rule regulates requirements for oil spill prevention, preparedness, and response to prevent oil discharges. It oversees management practices and contamination response programs to limit contact and exposure of the environment, wildlife, and humans to petroleum products.

Startle effect: The likely response by humans or animals caused by a sudden loud noise.

State Historic Preservation Officer (SHPO): The official appointed or designated pursuant to section 101(b)(1) of the NHPA to administer the State historic preservation program or a representative designated to act for the State historic preservation officer.

State land: Land owned and managed by the State (of Alaska) including Federal lands that are selected for the State and are pending final patenting.

Superfund: See CERCLA (above)

Surface Danger Zone: The ground and airspace designated within the training area (to include associated safety areas) for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems to include explosives and demolitions. Areas designated as SDZs must be evacuated of all personnel during training operations.

thermokarst: Land-surface configuration that results from the melting of ground ice in a region underlain by permafrost. In areas that have appreciable amounts of ice, small pits, valleys, and hummocks are formed when the ice melts and the ground settles unevenly.

Threatened Species: A species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Total Employment: Sum of, “persons 16 years and over in the civilian noninstitutional population who, during the reference week, (a) did any work at all (at least 1 hour) as paid employees; worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family; and (b) all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if he or she holds more than one job. Excluded are persons whose only activity consisted of work around their own house (painting, repairing, or own home housework) or volunteer work for religious, charitable, and other organizations” (BLS, 2011-1)

Toxic Substance Control Act (TSCA): The TSCA enforces management of harmful or potentially harmful substances. The TSCA requires the testing of chemicals that could be harmful to humans or the environment, imposes limits on the availability of certain substances, and establishes guidelines and programs for the safe management of chemicals.

Traditional Cultural Property (TCP): A TCP is defined as a property that is eligible for inclusion in the National Register of Historic Places because of its association with cultural practices or beliefs of a

living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community.

Traditional Cultural Resource: Traditional cultural resources include all properties of traditional religious and cultural importance to an Alaska Native or Indian tribe, whether determined eligible for inclusion in the National Register of Historic Places (i.e., a TCP) or not, and include resources identified as important to Native American or other traditional groups as outlined in the American Indian Religious Freedom Act (AIRFA); the Native American Graves Protection and Repatriation Act (NAGPRA); and Executive Order 13007, Indian Sacred Sites.

Unexploded Ordnance (UXO): Explosive ordnance that has been primed, fuzed, armed, or otherwise prepared for action, and that has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remains unexploded either by malfunction or design or for any other cause.

Vehicle Miles of Travel (VMT): Vehicle miles of travel are based on AADT estimates and include the distance traveled element and thus provide a measure of highway vehicle travel usage over a geographic area, such as a specific region or highway system. The formula to calculate VMT is as follows: $VMT = \text{Link Length} \times \text{Link AADT}$.

Visual Flight Rules (VFR): A standard set of rules that all pilots, both civilian and military, must follow when not operating under Instrument Flight Rules. These rules require that pilots remain clear of clouds and avoid other aircraft. (See glossary entry for Instrument Flight Rules.)

Chapter 10
EIS Distribution List and Repositories

10.0 LIST OF EIS REPOSITORIES

Anchorage Z. J. Loussac Public Library

Library type: Public
3600 Denali St. Anchorage, AK 99503
907-343-2975

University of Alaska, Anchorage (UAA)

Alaska Resources Library and Information Services

Library type: Academic
3211 Providence Dr, Anchorage, AK 99508
907-786-1974

Fairbanks North Star Borough (Noel Wien) Public Library

Library type: Public
1215 Cowles St. Fairbanks, AK 99701
907-459-1020

Elmer E. Rasmuson Library

University of Alaska Fairbanks
Library Type: Academic
310 Tanana Loop, Fairbanks, AK 99709
907-474-7224

Palmer Public Library

Library type: Public
655 S. Valley Way Palmer, AK 99645
907-745-4690

Cooper Valley Community Library

Library Type: Public
Mile 186 Glenn Highway, Glennallen, AK 99588
907-822-5427

Alaska Department of Fish and Game

Location Type: State Government Office
Mile 186.5 Glenn Highway, Glennallen, AK 99588
907-822-3461

Paxson Lodge

Location Type: Private Business
Mile 185.5 Richardson Highway, Paxson, AK 99586
907-822-3330

Delta Community Library

Library Type: Public
2291 Deborah Street, Delta Junction, AK 99737
907-895-4102

Tri-Valley School/Community Library

Library Type: School/Public
1 Suntrana Road, Healy, AK 99743
907-683-2507

Talkeetna Public Library

Library Type: Public
23151 South Talkeetna Spur Road, Talkeetna, AK 99676
907-733-2359

Wasilla Public Library

Library Type: Public
391 N. Main St. Wasilla, AK 99654
907-376-5913

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