Final Finding of No Significant Impact
Implementation of the Army Residential Communities Initiative, Fort Wainwright, Alaska

Pursuant to the Council on Environmental Quality Regulations (40 CFR Parts 1500-1508) for implementing the procedural provisions of the National Environmental Policy Act (42 USC 4321 et seq.) and the Army NEPA regulation (32 CFR Part 651), the US Army conducted an environmental assessment (EA) of the potential environmental and socioeconomic effects of transferring responsibility for providing housing and ancillary support facilities at Fort Wainwright under the Army's Residential Communities Initiative (RCI).

Purpose and Need

The purpose of the proposed action is to improve family housing at Fort Wainwright. The proposed action is needed to provide affordable quality housing and ancillary supporting facilities to Soldiers and their families by replacing or improving existing family housing units, bringing them up to current Army standards.

Proposed Action

Consistent with the authorities contained in the 1996 Military Housing Privatization Initiative (10 United States Code [USC] Sections 2871-2885), Fort Wainwright proposes to transfer responsibility for providing family housing and ancillary supporting facilities to Army Alaska Family Housing, a limited liability company composed of the Army and Actus Lend Lease. Fort Wainwright would accomplish this by conveying via lease all military family housing units and selected ancillary supporting facilities and grant a 50-year ground lease (with an optional 25-year extension) for the areas on which the housing and facilities are located and for additional non-housing areas to Army Alaska Family Housing. Fort Wainwright and Army Alaska Family Housing developed the Community Development and Management Plan (CDMP) to implement the Military Housing Privatization Initiative.

In accordance with the CDMP, Fort Wainwright proposes to convey its inventory of 1,850 family housing units and some ancillary facilities, and to lease for 50 years the 626 acres of land on which the housing units and ancillary facilities sit, to Army Alaska Family Housing.

Implementing the CDMP would include decreasing the overall housing inventory by 161 units, for a total of 1,689 units. Army Alaska Family Housing would construct an estimated 524 units, would demolish an estimated 685 units, and would revitalize an estimated 321 units during the first five years of the CDMP. The EA analyzed the development-related environmental effects that could occur during those five years (2009 through 2013). The EA also analyzed housing operation and maintenance that would begin during the first five years of CDMP implementation and would continue beyond that period.

Because the RCI footprint is within an active National Priorities List, established under the Comprehensive Environmental Response, Compensation, and Liability Act, every parcel within the footprint is governed by the Fort Wainwright Federal Facility Agreement and the institutional controls identified in related documents.

Alternatives Considered

Alternatives to the proposed action that were considered include a partial privatization alternative, a private sector reliance alternative, and a leasing alternative. All three were considered unreasonable and infeasible and were not further evaluated.

The Council on Environmental Quality regulations prescribe including a no action alternative, under which the Army would not implement the proposed action at the housing areas but would continue to provide for the family housing needs of its personnel through traditional military maintenance and construction procedures. Fort Wainwright would continue to obtain funding for family housing through the congressional authorization and appropriations process. Based on historical trends, the assumption is that the amount of congressional funding for family housing would not change and that the housing maintenance and repair requirements would continue to increase over a longer period of time.

Factors Considered in Determining that No Environmental Impact Statement is Required

In the EA, which is attached and incorporated by reference into this finding of no significant impact (FNSI), the potential effects of the proposed action and the no action alternative on following 12 resources areas were examined: land use; aesthetics and visual resources; air quality; noise; geology, soils, and seismicity; water resources; biological resources; cultural resources; socioeconomics and environmental justice; transportation; utilities; and hazardous and toxic substances.

As shown in the table below, implementing the proposed action would result in a combination of adverse and beneficial impacts.

Resource	**Environmental and Socioeconomic Consequences**
Land use	Short-term none, long-term minor beneficial
Aesthetic and visual resources	Short-term minor adverse, long-term negligible adverse, long-term minor beneficial
Air quality	Short-term minor adverse, long-term none
Noise	Short-term minor adverse, long-term none
Geology and soils	
• Geology and physiography	None
• Fault rupture zones and geologic hazards	Minor adverse
• Soils	Minor adverse
• Prime farmland	None
• Mineral resources	None
Water resources	
• Surface water	Minor adverse
• Groundwater	None
• Water quality	Minor adverse
• Floodplains	Minor adverse
Biological resources	Minor adverse with mitigation
Cultural resources	Minor adverse with mitigation
Socioeconomics and environmental justice	
• Regional economic activity	Short-term minor beneficial, long-term none
• Housing	Minor beneficial
• Quality of life	Minor beneficial
• Environmental justice	None
• Protection of children	Short-term minor adverse and long-term minor beneficial
Transportation	Short-term minor adverse with mitigation
Utilities	Short-term minor adverse, long-term minor beneficial
Hazardous and toxic substances	
• Construction activities	Short-term minor adverse

Resource	Environmental and Socioeconomic Consequences
• Site contamination and cleanup	Minor adverse with mitigation
• MEC	Minor adverse with mitigation
• PCBs, ACM, and LBP	Long-term minor beneficial
• Lead in soils	Short-term minor adverse, long-term minor beneficial
• Pesticides	None
• Radon	Long-term minor beneficial
• Other conditions of concern	None

The mitigation measures described below would be implemented as part of the proposed action to ensure that adverse impacts are maintained as minor for aesthetics and visual resources, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics and environmental justice, transportation, and hazardous and toxic substances.

Aesthetics and Visual Resources

- New units and community center would be designed to complement existing units and structures.
- Lighting for the new units and facilities would use proper outdoor lighting design features, such as shrouding outdoor lights to keep light from illuminating unnecessary areas and equipping outdoor lights with motion detectors, where practical, to provide light only when necessary.

Noise

- The Army would limit construction to normal business hours.

Geology and Soils

- Army Alaska Family Housing would prepare and implement a stormwater pollution prevention plan identifying appropriate best management practices to reduce nonpoint pollution, including discharge of sediment during construction.
- Army Alaska Family Housing would conduct soil surveys and subsurface investigations at the proposed sites to determine the presence of permafrost. If permafrost is present, these explorations would determine if it is thaw-stable or thaw-unstable, would identify the type of soil present, and would determine the best construction method to reduce the adverse effects on permafrost.

Water Resources

- Army Alaska Family Housing would comply with all regulatory requirements, including preparing and implementing a stormwater pollution prevention plan that would include best management practices developed to minimize potential impacts from increased runoff.

Biological Resources

Migratory Bird Treaty Act Species

- Whenever possible, seasonal work windows would be used to ensure that no migratory birds are harmed during development actions. To the greatest extent practicable, clearing vegetation from May 1 to July 15 would be avoided. Every practicable attempt would be made to begin clearing vegetation before May 1 to reduce the risk of take; or
- If seasonal windows could not be avoided, a qualified biologist would conduct surveys immediately before and during project activities. If surveys occur within the breeding season (February through August), the following additional measures would be undertaken:
    - Survey the project site boundaries just before clearing and flag any visible migratory bird nests, including any ground nests of birds protected by the Migratory Bird Treaty Act, so the equipment operators can avoid disturbing the nest or the vegetation holding the nest. The birds would be left undisturbed until the young fledge;

- During clearing, the equipment operator would pay attention and avoid any visible nests or birds;
- A 100-foot radius exclusion zone around the nest would be demarcated by fencing. If unoccupied or partially constructed nests of Migratory Bird Treaty Act birds are discovered, the nests would be removed by, or under the direct supervision of, a qualified biologist;
- If surveys reveal nesting birds protected by the Migratory Bird Treaty Act in buildings proposed for demolition, the nests would be avoided and the birds would be left undisturbed until the young fledge;
- If unoccupied or partially constructed nests of Migratory Bird Treaty Act birds are discovered, the nests would be removed by, or under the direct supervision of, a qualified biologist. If birds begin establishing nests within buildings to be demolished, the nest materials would be removed in accordance with Migratory Bird Treaty Act guidelines and with a permit as needed to deter further nest establishment; and
- If migratory birds or their protected nests were found and could not be avoided, the Army would consult with the US Fish and Wildlife Service to address any takes before disturbing the birds or their nests.

Cliff Swallows

- Use proactive deterrents as the most effective way to decrease the possibility of affecting nesting birds. A proactive management system should be put in place to remove nests being constructed before they become occupied. When possible, Army Alaska Family Housing would remove nests or nest materials before migration starts and maintain these clean areas.
- Check buildings each spring in mid-April. Any small openings would be covered to bar entry to nesting birds. All stovepipes and dryer vents would be checked regularly and covered when not in use to prevent birds from nesting. Screening also could be used to discourage nesting. If nesting could not be prevented, then the established nest would be left in place until the chicks fledge and adult birds leave the nest.
- Design buildings to take into account the propensity for cliff swallows to nest under the eaves of housing and the tendency of birds to return to established nests. Structural design features include making sure to minimize sharp angles, reduce overhangs or squared off corners as much as possible, or use an additive to the building materials that emulates “slime,” discouraging birds from nesting. Several commercial products are also available to prevent nests from being established, including nets, spikes, electric or ultrasonic emissions, various repellents, sloping devices, traps, and wires. These products would only be used when no established and occupied nests are present.
- Use an education program using Fort Wainwright’s educational materials to establish active wildlife management to anticipate and avoid potential impacts. Educational material disseminated in the installation publication as well as posted in public areas would support management.
- Use, where practicable, the following Boreal Partners in Flight Working Group guidance:
  - Use preventive measures and a proactive approach as the most efficient and simple way to deal with the nesting birds;
  - Prevent nesting between first arrival to July 15;
  - Do not remove nests until all signs of occupancy are gone;
  - Monitor any and all areas that will be of importance between first arrival and July 15 for nest construction;
  - Remove nest constructions while being built. If in doubt of occupancy, leave nest or consult with US Fish and Wildlife Service experts to assess;
  - Continue monitoring and proactive measures until July 15; and
  - Consider obtaining materials to prevent nesting if monitoring is lacking.

Other Colonial Migratory Bird Species

- Army Alaska Family Housing would cover with plastic sheeting any large mounds of dirt piled and unused for long periods.

Bald and Golden Eagles

- Survey the project site boundaries immediately prior to any clearing and flag any visible eagle nests so the equipment operators can avoid disturbing the nest or the vegetation holding the nest. The birds would be left undisturbed until the young fledge; and
- If an inactive bald or golden eagle nest is suspected within the footprint of the project, consider moving the project 660 feet away from the nest site.

Cultural Resources

- Implement the requirements of the programmatic agreement.
- The Army would ensure that the design of the proposed facilities would be developed in accordance with the North Post/Ladd Field Distinguishable Area Design Guidelines.

Socioeconomics and Environmental Justice

- During construction, safety measures would be followed to protect the health and safety of residents, especially children.

Transportation

- Monitor traffic levels on affected roadways and delays at affected intersections and take appropriate actions to minimize development-related traffic, such as requiring development-related vehicles to use alternate access gates, designated travel routes, and off-peak travel times.
- To help reduce risks to children and to minimize the potential for pedestrian and vehicle accidents and to maximize safety and awareness for those in the affected community areas, the following actions are recommended:
  - Alerting residents when construction- and demolition-related activity and traffic are planned to be in their areas, including distributing and posting construction and demolition schedules;
  - Requiring construction and demolition vehicles to use flashing lights and possibly auditory warning devices when traveling through areas where children are present;
  - Stationing crossing guards at selected intersections and play areas at certain times to adequately safeguard children and others; and
  - Preparing and distributing a comprehensive traffic routing and pedestrian protection plan before demolition and construction begin in the neighborhoods. The plan preparation would include input and representation from residents in the affected communities and other knowledgeable personnel from Fort Wainwright.

Hazardous and Toxic Substances

- Army Alaska Family Housing would notify workers of any potential health hazards, and the workers would use proper health and safety measures. Also, Army Alaska Family Housing would employ personnel trained and certified by the Occupational Safety and Health Administration for any activities potentially involving exposure to hazardous substances.
- Army Alaska Family Housing would use best management practices, such as secondary containment, fencing, and signs, to ensure that workers and residents were not exposed to hazardous materials and that hazardous materials are not released to the environment.
- Persons working with or near fresh paint and asphalt would protect themselves by wearing appropriate clothing, washing their hands before eating or smoking, and bathing at the end of each workday.
- The construction contractors would be responsible for preventing paint and fuel spills by properly storing and handling these materials, paying attention to the task at hand, and driving safely.
- Construction sites would be fenced and access would be properly controlled in order to prevent

residents, particularly children, from entering these sites.

- Pursuant to the Federal Facilities Agreement, the Army, in coordination with the Alaska Department of Environmental Conservation and the US Environmental Protection Agency will perform remedial actions necessary for the property to be safe for residential use and establish institutional and land use controls that Army Alaska Family Housing, and by extension its subcontractors, workers, and customers/residents, would adhere to.
- Portions of active remediation sites where residents, particularly children, could come into contact with contaminants would be fenced or otherwise controlled.
- In the event that a new potentially-contaminated site is identified, appropriate interim controls would be immediately implemented in the potentially-affected area to prevent resident exposure.
- Army Alaska Family Housing, and by extension its subcontractors, workers and customers/residents, would comply with all relevant engineering, land use and institutional controls as well as other requirements from the applicable record of decision. For example, Army Alaska Family Housing would comply with requirements for dig permits, worker certification, and notification requirements.
- Army Alaska Family Housing would coordinate with Army safety personnel for any construction in areas that potentially contain munitions and explosives of concern. All individuals involved in ground-disturbing activities in the affected areas would receive munitions and explosives of concern familiarization training. If applicable, certified unexploded ordnance technicians would oversee ground-disturbing activities. In the event that munitions and explosives of concern or suspected munitions and explosives of concern are discovered on the RCI footprint, all intrusive or ground-disturbing activities would cease, and the Fort Wainwright Provost Marshall's Office would immediately be notified. The munitions and explosives of concern or suspected munitions and explosives of concern would not be disturbed in any way until qualified personnel could dispose of it.
- The Army would conduct a comprehensive survey of lead levels in soil in all family housing areas where structures existed prior to 1978 and where exterior lead-based paint could reasonably be expected to have come into contact with soil. Based on the results of the survey and applicable regulations, appropriate abatement measures would be implemented.
- Prior to the lead in soil survey and abatement, ground cover would be maintained to prevent human contact with bare soil. Where vegetative ground cover is not in place, bare soil would be covered with a thick layer of wood chips, sand, top soil or other appropriate materials. Snow and ice also provide a natural impediment to soil contact during part of the year. Residents would be informed of the potential for elevated soil lead levels and provided a fact sheet detailing methods to protect children from exposure. The Bassett Hospital would test the blood-lead levels of children as requested by parents and guardians.
- Army Alaska Family Housing would comply with Fort Wainwright’s integrated pest management plan, which, among other provisions, forbids applying pesticides on playgrounds, wetlands, and surface water bodies and keeps application to a minimum in other sensitive areas.
- Buildings would be equipped with radon vapor ventilation systems.
- Establishing dedicated smoking areas and prohibiting open flames near flammable materials would greatly reduce the risk of fire.

Conclusion

Based on the findings in the EA, implementing the proposed action would have no significant direct, indirect, or cumulative effects on the resources above, so an environmental impact statement need not be prepared. This EA supports the issuance of a FNSI.

Conclusion

Based on the findings in the EA, implementing the proposed action would have no significant direct, indirect, or cumulative effects on the resources above, so an environmental impact statement need not be prepared. This EA supports the issuance of a FNSI.

Public Comment

The EA was made available for review and comment for 15 days, from December 15, 2008, to December 30, 2008. The EA was available for review at www.usarak.army.mil/conservation/NEPA_FWA.htm and at the Noel Wien Public Library, 1215 Cowles Street, Fairbanks, (907) 459-1033. No comments were received during this period.

TIMOTHY A. JONES
Colonel, US Army
Commander, Fort Wainwright

5 Jan 09
Date

Environmental Assessment of Implementation of the Army Residential Communities Initiative, Fort Wainwright, Alaska

Prepared for:

Commander, Fort Wainwright

Prepared by:

US Army Corps of Engineers

Mobile District

With technical assistance from:

Tetra Tech, Inc.

San Francisco, California

November 2008

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This environmental assessment (EA) addresses the proposed action to implement the Army Residential Communities Initiative (RCI) at a project site on Fort Wainwright, Alaska. It has been developed in accordance with the National Environmental Policy Act and implementing regulations issued by the Council on Environmental Quality (40 CFR Parts 1500 – 1508) and the Army (32 CFR Part 651). Its purpose is to inform decision-makers and the public of the likely environmental and socioeconomic consequences of the proposed action and alternatives.

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SECTION 1.0: ***PURPOSE, NEED, AND SCOPE*** summarizes the purpose of and need for the proposed action and describes the scope of the environmental impact analysis process.

SECTION 2.0: ***PROPOSED ACTION*** describes the proposed action to implement RCI actions at a project site on Fort Greely.

SECTION 3.0: ***ALTERNATIVES*** examines alternatives for implementing the proposed action.

SECTION 4.0: ***AFFECTED ENVIRONMENT AND CONSEQUENCES*** describes the existing environmental conditions at the project site that could be affected by the proposed action and identifies potential environmental effects that could occur if the alternatives were implemented.

SECTION 5.0: ***FINDINGS AND CONCLUSIONS*** summarizes the resulting environmental effects.

SECTION 6.0: ***REFERENCES*** provides the bibliographical information for cited sources of information.

SECTION 7.0: ***LIST OF PREPARERS*** identifies persons who prepared this EA.

SECTION 8.0: ***PERSONS CONSULTED*** provides a listing of persons and agencies consulted during the preparation of this EA.

SECTION 9.0: ***DISTRIBUTION LIST*** identifies recipients of this EA.

APPENDICES

Appendix A Community Development and Management Plan Development Brief
Appendix B Agency Correspondence
Appendix C Cultural Resources
Appendix D Draft Record of Nonapplicability
Appendix E Draft Finding of No Practicable Alternative

ACRONYMS AND ABBREVIATIONS

ENVIRONMENTAL ASSESSMENT
IMPLEMENTATION OF THE ARMY RESIDENTIAL COMMUNITIES INITIATIVE
FORT WAINWRIGHT, ALASKA

Prepared by:

MOBILE DISTRICT
US ARMY CORPS OF ENGINEERS

BYRON G. JORNS
Colonel, Corps of Engineers
Commanding

Approved by:

FORT WAINWRIGHT

TIMOTHY A. JONES
Colonel, US Army
Commanding

November 2008

ENVIRONMENTAL ASSESSMENT

LEAD AGENCY: US Army, Fort Wainwright

TITLE OF PROPOSED ACTION: Implementation of the Army Residential Communities Initiative at Fort Wainwright, Alaska

AFFECTED JURISDICTION: Fort Wainwright, Fairbanks

PREPARED BY: Byron G. Jorns, Colonel, US Army Corps of Engineers, Mobile District

APPROVED BY: Timothy A. Jones, Colonel, Fort Wainwright

ABSTRACT: This environmental assessment considers the environmental and socioeconomic effects of the proposed implementation of the Army's Residential Communities Initiative at Fort Wainwright, Alaska. This report identifies, evaluates, and documents the effects of obtaining private sector funding for constructing, maintaining, managing, renovating, replacing, rehabilitating, and developing family housing and ancillary supporting facilities. A no action alternative is also evaluated. Implementing the proposed action is not expected to result in significant environmental impacts; therefore an environmental impact statement is not required, and a finding of no significant impact (FNSI) will be published in accordance with the National Environmental Policy Act and the Army National Environmental Policy Act regulations (32 CFR Part 651, *Environmental Analysis of Army Actions*).

REVIEW COMMENT DEADLINE: This EA is available for review and comment for 15 days, from December 15, 2008, to December 30, 2008. Copies of the EA and draft FNSI can be obtained by contacting Jessica Garron, Fort Wainwright NEPA Coordinator, Directorate of Public Works, Attn: IMPC-FWA-PWE (Garron), 3023 Engineer, Place, Building 3023, Fort Wainwright, AK 99703, 907-361-3001. The EA also is available at http://www.usarak.army.mil/conservation/NEPA_FWA.htm and at the following library: Noel Wien Public Library, 1215 Cowles Street, Fairbanks, 907-459-1033. Comments on this EA and draft FNSI should be submitted to the Fort Wainwright NEPA Coordinator at the address listed above or by electronic mail to jessica.garron@us.army.mil not later than December 30, 2008.

EXECUTIVE SUMMARY

INTRODUCTION

More than 75 percent of the US Army's family housing units do not meet current military housing standards. At most installations, demand for adequate on-base housing exceeds the supply. The Military Housing Privatization Initiative (MHPI), contained in Section 2801 of the 1996 Defense Authorization Act (10 United States Code, Sections 2871-2885), gives the Army new alternative authorities for improving and constructing military family housing. The Army's implementation of the MHPI authorities is known as the Army Residential Communities Initiative (RCI). By leveraging scarce public funding, the Army can obtain private sector funds for constructing, maintaining, managing, renovating, replacing, rehabilitating, and developing military family housing and ancillary supporting facilities.

This environmental assessment (EA) has been developed in accordance with the National Environmental Policy Act of 1969 (NEPA) and with implementing regulations issued by the Council on Environmental Quality (40 Code of Federal Regulations, Parts 1500-1508) and the Army (32 Code of Federal Regulations, Part 651). Its purpose is to inform decision-makers and the public of the likely environmental consequences of the proposed action and alternatives.

BACKGROUND

Fort Wainwright lies 120 miles south of the Arctic Circle and has real property holdings that total approximately 1,541,000 acres, generally divided into four distinct areas: Main Post (13,700 acres), the Yukon Maneuver Area (247,952 acres), the Tanana Flats Training Area (over 655,000 acres), and the Donnelly Training Area (624,000 acres). The Main Post of Fort Wainwright, on which the proposed action would occur, rests on a flat alluvial plain. It is bordered on the west by the city of Fairbanks and on the other three sides by open space that is owned privately and by the State of Alaska. The Main Post includes the Ladd Field National Historic Landmark and the Ladd Air Force Base Cold War Historic District. Fort Wainwright is listed on the National Priorities List, established under the Comprehensive Environmental Response, Compensation, and Liability Act. The mission of Fort Wainwright includes training and maintaining assigned units in a state of readiness for national defense, training personnel and testing equipment under extreme cold weather conditions, and providing space, facilities, and support for various military, civilian, and government users, such as the US Bureau of Land Management.

PROPOSED ACTION AND ALTERNATIVES

Consistent with authorities contained in the 1996 MHPI, Fort Wainwright proposes to transfer responsibility for providing family housing and ancillary supporting facilities to Army Alaska Family Housing, a limited liability company composed of the Army and Actus Lend Lease, a private housing development company. Fort Wainwright would accomplish this by conveying under a lease all existing on-post family housing units and selected ancillary supporting facilities to Army Alaska Family Housing. Fort Wainwright also proposes to grant a 50-year ground lease (with an optional 25-year extension) for the areas on which the housing and facilities are located and for additional non-housing areas to Army Alaska Family Housing.

The purpose of the proposed action is to improve Army family housing and ancillary supporting facilities at Fort Wainwright. The proposed action is needed to provide affordable quality housing

and ancillary supporting facilities to Soldiers and their families by replacing or improving existing family housing units to bring them up to current Army standards.

Army Alaska Family Housing developed the Community Development and Management Plan (CDMP) to meet Fort Wainwright's housing needs for attaining affordable quality housing and other facilities. Development of the CDMP was an iterative process that was focused on meeting Fort Wainwright's combined housing goals of attaining affordable quality housing and other facilities, as well as minimizing or avoiding any potential environmental impacts. An overview of the CDMP is provided in Appendix A. In accordance with the CDMP, Fort Wainwright proposes to convey under a lease the inventory of 1,850 family housing units to Army Alaska Family Housing and to lease to Army Alaska Family Housing for 50 years (with an optional 25-year extension) the land on which the housing units and ancillary supporting facilities sit. The total acreage to be leased would be approximately 626 acres.

Implementing the CDMP would include decreasing the overall housing inventory by 161 units for a total of 1,689 units. Army Alaska Family Housing would construct an estimated 524 new units, would demolish an estimated 685 units, and would revitalize an estimated 321 units. The initial development plan would be implemented over five years, beginning in 2009. All demolition and construction would occur within the first five years of project implementation. New housing units would be constructed before existing housing units were demolished or renovated to provide a pool of housing to prevent a housing shortage during construction and renovation. Implementation of the proposed action would require Army Alaska Family Housing to operate and maintain all family housing for 50 years and to construct, operate, and maintain ancillary supporting facilities, such as parks and playgrounds.

The CDMP proposes to build new housing and to improve existing housing, based on an "understanding and respect for natural systems." The Fort Wainwright family housing would be developed in such a way that respects the natural and built environment in order to minimize impacts and to capitalize on the value of the environment. Planning would support the following environmental principles:

- Housing areas would be designed to respect the natural systems of topography, vegetation, and drainage;
- Developed areas would be designed to minimize grounds work, aboveground utilities, and drainage;
- Existing landscape would be preserved in all possible situations;
- The landscape would be populated with native plant materials;
- A water management system would be designed to handle both the quantity and quality of stormwater runoff;
- Community design would reduce dependency on the car;
- The sense of community would be heightened with improved and linked open spaces, strategic tree locations, trail systems, activity areas, and street layouts that enhance the quality of outdoor life;
- Existing landscapes would be accessed and integrated with new landscapes; and
- The planned development would maximize water conservation and energy conservation and would incorporate sustainable design measures.

Alternatives to the proposed action that were considered include partial privatization, in which only a portion of family housing would fall under the RCI. Military housing in good condition could remain subject to Army management. This alternative, however, would delay actions to provide adequate housing for some service members and their families, would not be cost efficient, and thus would not fully meet the Army's purpose and need for the proposed action. Under an alternative in which Fort Wainwright would rely wholly on the private sector for family housing needs, Fort Wainwright would terminate family housing programs, would dispose of existing family housing units, and would convert the land supporting housing areas to other uses. Relying solely on the private sector would not be fiscally responsible either. In the case of the third alternative—leasing the property—two key statutory authorities are applicable: Section 801 Housing (long-term leasing of housing) and Section 802 Housing (rental guarantees for housing). Although use of either or both of these authorities would be possible, their use would not be reasonable when compared to the far more flexible and economic advantages of the new authorities offered by the RCI to the Army families. Accordingly, these alternatives were considered unreasonable under the circumstances and therefore were not further evaluated.

As prescribed by Council of Environmental Quality regulations, this EA also evaluates the no action alternative, in which the Army would continue to provide for the family housing needs of its personnel with traditional military construction and maintenance funding through the congressional authorization and appropriations process.

The EA analyzes the proposed action (the preferred alternative) and the no action alternative. The focus is on evaluating environmental effects that could occur in the first five years of implementing the CDMP (through 2013), following property conveyance and lease. All construction and demolition is expected to be completed within the first five years of CDMP implementation. Predicting potential development-related environmental effects beyond 2013 is not attempted in this EA. Housing operation and maintenance and associated impacts would begin during the first five years of CDMP implementation and would continue beyond that period. As future construction, demolition, and renovation are proposed, appropriate NEPA analysis would be prepared to evaluate those activities.

ENVIRONMENTAL CONSEQUENCES

Consequences of the Proposed Action

Because the RCI footprint is within an active National Priorities List, established under the Comprehensive Environmental Response, Compensation, and Liability Act, every parcel within the footprint is governed by the Fort Wainwright Federal Facility Agreement and the institutional controls identified in related documents.

Land Use. No adverse effects on surrounding land use are expected because use of this land for housing and community facilities would be compatible with surrounding land use and with Fairbanks North Star Borough's planning and zoning. Long-term minor beneficial effects on installation land use are expected with the implementation of the proposed action. New development would be compatibly integrated with existing built and undeveloped areas.

Aesthetics and Visual Resources. Short-term adverse impacts on the visual character or quality of the RCI parcels from work activity and equipment are limited to the duration of renovation, demolition, and construction and to those affected portions of the installations. Once renovation, demolition, and construction were finished, there would be long-term beneficial impacts on the visual character and quality of the RCI footprint and surrounding areas because the proposed action would improve or

replace aging units and would improve the look and feel of an area by balancing the aesthetic between the built and natural environment. After renovation, demolition, and construction, the new and renovated units and ancillary supporting facilities would have long-term negligible adverse impacts on scenic vistas and light and glare.

Air Quality. Criteria pollutant emissions associated with the proposed action are considered minor, and no formal Clean Air Act conformity determination is required. The expected greenhouse gas emissions that would be produced by the proposed action would be temporary and are too small an increment of statewide greenhouse gas emissions to be considered significant. No long-term changes in emissions from housing occupancy or vehicle travel are expected as a result of the proposed action.

Noise. Because Most of the RCI footprint is more than a mile from the installation boundaries, construction and demolition would have little or no noise impact on sensitive land uses (including residential and educational) in Fairbanks. The Army would limit development activities to normal business hours, so noise generated during those activities would be temporary and minor. Over the long term, no adverse noise impacts are expected.

Geology and Soils. Because the proposed action involves ground disturbance at depths that would not change the geological formations within the project footprint, no effects to geology are expected. Seismicity impacts could be adverse, but the proposed RCI development would be constructed to current building code standards, so the effects would be minor. Conducting soil surveys and subsurface investigations and implementing the most appropriate construction methods for the soil characteristics and the potential presence of permafrost would ensure that soil effects are minor adverse. Because there are no prime farmlands within the RCI footprint, no impacts are expected. There are no valid or existing mineral location claims or mineral leases on Fort Wainwright lands, so no impacts on mineral resources would result from the proposed action.

Water Resources. Implementing best management practices would ensure that only minor erosion impacts and associated impacts on receiving waters in the Fort Wainwright area would occur. Army Alaska Family Housing would ensure that no wastewater or effluent is discharged from the site in a manner that would contaminate soils, streams, or other bodies of water. There would be no effects on groundwater supplies or interference with groundwater recharge from the proposed action, nor would it interfere with seepage flow to nearby streams, so it would not result in an impact. The effects of the proposed action on groundwater quality are minor adverse from construction. Most of the RCI footprint is within the 100-year floodplain of the Chena and Tanana Rivers, but there are no practicable alternatives to locating the proposed action in a floodplain. In addition, the proposed project site is protected by levees, swales, and melt channels and is part of the Chena River Flood Control Project. The flood control project eliminates or minimizes potential risks of flood loss and lessens the impact of floods on human safety, health, and welfare.

Biological Resources. No special status species occur within the region of influence, except for Migratory Bird Treaty Act species. Nesting Migratory Bird Treaty Act species could be significantly affected by demolition and renovation activities. Mitigation measures would be implemented to reduce anticipated effects to minor adverse. Because operational activities would be substantially similar to existing activities, there would no operational impacts on biological resources.

Cultural Resources. Potentially significant impacts on cultural resources resulting from renovation of Building 1048 would be reduced to minor adverse through implementation of the RCI programmatic agreement. Also, the Army would ensure that the design of the proposed facilities would be developed in accordance with the North Post/Ladd Field Distinguishable Area Design Guidelines.

Socioeconomics. Employment and regional spending would increase during the development period, and there would be no population changes. Long-term minor beneficial effects on Fort Wainwright family housing are expected. The RCI program would improve the condition and aesthetic appeal of family housing through revitalizing and constructing new units. The overall quality of life for Soldiers and their families at Fort Wainwright would be improved by implementing the RCI program because of the improved condition of on-post family housing, as well as the overall residential community. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations as a result of implementing the proposed action. Short-term minor adverse and long-term minor beneficial effects on protection of children are expected. In the short term, construction sites at Fort Wainwright could pose a potential safety hazard to children. Long-term beneficial impacts are expected due to a reduction in exposure to hazardous materials that may be present in the old housing.

Transportation. Although it is not possible to accurately predict the level of impact from project traffic increases during the periods of peak development, overall impacts of increased traffic on affected roadways from the increases in development-related vehicles are expected to be minor. In those neighborhoods where development-related vehicle routes may pass through or near residential areas where children may be at play, the risk to children and other pedestrians is considered moderate to high because of the narrow streets in the residential areas and the potential for children to be distracted by play. Safety measures would be implemented to reduce these impacts to minor adverse.

Utilities. Because there are sufficient capacities in the utility systems serving Main Post to sustain the existing and foreseeable number of residences, no appreciable impacts on utilities are anticipated. The reduction in family housing demand for utilities associated with the increased efficiency of new housing units would have a beneficial impact on those utility systems. Because the increase in solid waste would not exceed the capacities of the affected landfills, impacts would be minor adverse.

Hazardous and Toxic Substances. The use of hazardous materials during development activities would increase the potential for releases to the environment and for worker and resident exposures. Impacts would be minor because proper hazardous materials management practices would be observed. Polychlorinated biphenyls, petroleum, oil, and lubricants, trichloroethene, pesticides, solvents, lead, and munitions and explosives of concern have been released to soil and groundwater on portions of the RCI footprint. Impacts from these releases would be minor adverse because the Army would remediate all contamination before the affected properties are occupied. Residual contamination, or concentrations of contaminants below the relevant action threshold, may remain on the property after all remedial actions are completed. In the event that munitions and explosives of concern are discovered on the RCI footprint, it would not be disturbed in any way until qualified personnel could dispose of it. By implementing appropriate munitions and explosives of concern measures, minor adverse impacts are expected. Long-term minor beneficial effects are expected to result from removing hazardous materials from housing units. Residents, including children, could be exposed to existing lead in soils. Potential long-term beneficial impacts would result from removing lead-contaminated soils, if necessary, from family housing areas. No adverse impacts are expected involving pesticides. Long-term minor beneficial impacts are expected from incorporating radon ventilation systems because they would further reduce radon levels in family housing units.

Consequences of the No Action Alternative

Only those resources that would be affected by the no action alternative are discussed below.

Geology and Soils. Long-term minor adverse effects on seismicity and geologic hazards are expected. Facilities at the project site were designed to past, possibly less stringent, standards than are currently required, so seismic events could adversely impact them.

Socioeconomics. Long-term minor adverse effects are expected. Continuation of family housing programs as they are at present would perpetuate deficiencies in quality of life for many Soldiers and their dependents.

Long-term minor adverse effects on the protection of children are expected. As homes deteriorate, the risk of children being exposed to hazardous materials (for example, from chipping lead-based paint or asbestos from cracked asbestos tiles) would increase.

Hazardous and Toxic Substances. Minor adverse effects could occur. Due to the extensive maintenance backlog and budget constraints, it is possible that Army family housing units containing special hazards, such as lead-based paint, asbestos-containing material, and possibly polychlorinated biphenyls in older lighting ballasts, could deteriorate to the extent that those substances would pose health risks to occupants and, in the case of exterior lead-based paint, be released to the environment. The assumption is that Fort Wainwright would continue to abate these potential hazards in accordance with applicable laws, but it would be over a much greater period than under the proposed action, so the possibility of adverse effects exists.

Table ES-1 summarizes the predicted effects for each resource area from both the proposed action and the no action alternative.

Table ES-1
Summary of Potential Environmental and Socioeconomic Consequences

Resource	Environmental and Socioeconomic Consequences	
	Proposed Action	**No Action Alternative**
Land use	Short-term none, long-term minor beneficial	None
Aesthetic and visual resources	Short-term minor adverse, long-term negligible adverse, long-term minor beneficial	None
Air quality	Short-term minor adverse, long-term none	None
Noise	Short-term minor adverse, long-term none	None
Geology and soils		
• Geology and physiography	None	None
• Fault rupture zones and geologic hazards	Minor adverse	Long-term minor adverse
• Soils	Minor adverse	None
• Prime farmland	None	None
• Mineral resources	None	None
Water resources		
• Surface water	Minor adverse	None
• Groundwater	None	None
• Water quality	Minor adverse	None
• Floodplains	Minor adverse	None
Biological resources	Minor adverse with mitigation	None

Table ES-1
Summary of Potential Environmental and Socioeconomic Consequences

Resource	Environmental and Socioeconomic Consequences	
	Proposed Action	**No Action Alternative**
Cultural resources	Minor adverse with mitigation	None
Socioeconomics and environmental justice		
• Regional economic activity	Short-term minor beneficial, long-term none	None
• Housing	Minor beneficial	Long-term minor adverse
• Quality of life	Minor beneficial	Long-term minor adverse
• Environmental justice	None	None
• Protection of children	Short-term minor adverse and long-term minor beneficial	Long-term minor adverse
Transportation	Short-term minor adverse with mitigation	None
Utilities	Short-term minor adverse, long-term minor beneficial	None
Hazardous and toxic substances		
• Construction activities	Short-term minor adverse	None
• Site contamination and cleanup	Minor adverse with mitigation	Minor adverse
• MEC	Minor adverse with mitigation	Minor adverse
• PCBs, ACM, and LBP	Long-term minor beneficial	Minor adverse
• Lead in soils	Short-term minor adverse, long-term minor beneficial	Minor adverse
• Pesticides	None	None
• Radon	Long-term minor beneficial	Minor adverse
• Other conditions of concern	None	None

MITIGATION

Mitigation actions would be used to reduce, avoid, or compensate for most adverse effects. Table ES-2 summarizes the proposed mitigation measures to be taken for each of the affected resources. Additional measures that are considered to be standard operating procedures that would be implemented as part of the proposed action are included in the impact analyses of several resource sections.

CONCLUSION

Based on the analysis performed in this EA, implementing the preferred alternative would have no significant direct, indirect, or cumulative effects on the quality of the natural or human environment. An environmental impact statement need not be prepared, and a finding of no significant impact can be issued.

Table ES-2
Summary of Mitigation Measures

Aesthetics and Visual Resources

- New units and community center would be designed to complement existing units and structures.
- Lighting for the new units and facilities would use proper outdoor lighting design features, such as shrouding outdoor lights to keep light from illuminating unnecessary areas and equipping outdoor lights with motion detectors, where practical, to provide light only when necessary.

Noise

- The Army would limit construction to normal business hours.

Geology and Soils

- Army Alaska Family Housing would prepare and implement a stormwater pollution prevention plan identifying appropriate best management practices to reduce nonpoint pollution, including discharge of sediment during construction.
- Army Alaska Family Housing would conduct soil surveys and subsurface investigations at the proposed sites to determine the presence of permafrost. If permafrost is present, these explorations would determine if it is thaw-stable or thaw-unstable, would identify the type of soil present, and would determine the best construction method to reduce the adverse effects on permafrost.

Water Resources

- Army Alaska Family Housing would comply with all regulatory requirements, including preparing and implementing a stormwater pollution prevention plan that would include best management practices developed to minimize potential impacts from increased runoff.

Biological Resources

Migratory Bird Treaty Act Species

- Whenever possible, seasonal work windows would be used to ensure that no migratory birds are harmed during development actions. To the greatest extent practicable, clearing vegetation from May 1 to July 15 would be avoided. Every practicable attempt would be made to begin clearing vegetation before May 1 to reduce the risk of take; or
- If seasonal windows could not be avoided, a qualified biologist would conduct surveys immediately before and during project activities. If surveys occur within the breeding season (February through August), the following additional measures would be undertaken:
    - Survey the project site boundaries just before clearing and flag any visible migratory bird nests, including any ground nests of birds protected by the Migratory Bird Treaty Act, so the equipment operators can avoid disturbing the nest or the vegetation holding the nest. The birds would be left undisturbed until the young fledge;
    - During clearing, the equipment operator would pay attention and avoid any visible nests or birds;
    - A 100-foot radius exclusion zone around the nest would be demarcated by fencing. If unoccupied or partially constructed nests of Migratory Bird Treaty Act birds are discovered, the nests would be removed by, or under the direct supervision of, a qualified biologist;
    - If surveys reveal nesting birds protected by the Migratory Bird Treaty Act in buildings proposed for demolition, the nests would be avoided and the birds would be left undisturbed until the young fledge;
    - If unoccupied or partially constructed nests of Migratory Bird Treaty Act birds are discovered, the nests would be removed by, or under the direct supervision of, a qualified biologist. If birds begin establishing nests within buildings to be demolished, the nest materials would be removed in accordance with Migratory Bird Treaty Act guidelines and with a permit as needed to deter further nest establishment; and
    - If migratory birds or their protected nests were found and could not be avoided, the Army would

Table ES-2
Summary of Mitigation Measures

consult with the US Fish and Wildlife Service to address any takes before disturbing the birds or their nests.

Cliff Swallows

- Use proactive deterrents as the most effective way to decrease the possibility of affecting nesting birds. A proactive management system should be put in place to remove nests being constructed before they become occupied. When possible, Army Alaska Family Housing would remove nests or nest materials before migration starts and maintain these clean areas.
- Check buildings each spring in mid-April. Any small openings would be covered to bar entry to nesting birds. All stovepipes and dryer vents would be checked regularly and covered when not in use to prevent birds from nesting. Screening also could be used to discourage nesting. If nesting could not be prevented, then the established nest would be left in place until the chicks fledge and adult birds leave the nest.
- Design buildings to take into account the propensity for cliff swallows to nest under the eaves of housing and the tendency of birds to return to established nests. Structural design features include making sure to minimize sharp angles, reduce overhangs or squared off corners as much as possible, or use an additive to the building materials that emulates “slime,” discouraging birds from nesting. Several commercial products are also available to prevent nests from being established, including nets, spikes, electric or ultrasonic emissions, various repellents, sloping devices, traps, and wires. These products would only be used when no established and occupied nests are present.
- Use an education program using Fort Wainwright’s educational materials to establish active wildlife management to anticipate and avoid potential impacts. Educational material disseminated in the installation publication as well as posted in public areas would support management.
- Use, where practicable, the following Boreal Partners in Flight Working Group guidance:
    - Use preventive measures and a proactive approach as the most efficient and simple way to deal with the nesting birds;
    - Prevent nesting between first arrival to July 15;
    - Do not remove nests until all signs of occupancy are gone;
    - Monitor any and all areas that will be of importance between first arrival and July 15 for nest construction;
    - Remove nest constructions while being built. If in doubt of occupancy, leave nest or consult with US Fish and Wildlife Service experts to assess;
    - Continue monitoring and proactive measures until July 15; and
    - Consider obtaining materials to prevent nesting if monitoring is lacking.

Other Colonial Migratory Bird Species

- Army Alaska Family Housing would cover with plastic sheeting any large mounds of dirt piled and unused for long periods.

Bald and Golden Eagles

- Survey the project site boundaries immediately prior to any clearing and flag any visible eagle nests so the equipment operators can avoid disturbing the nest or the vegetation holding the nest. The birds would be left undisturbed until the young fledge; and
- If an inactive bald or golden eagle nest is suspected within the footprint of the project, consider moving the project 660 feet away from the nest site.

Cultural Resources

- Implement the requirements of the programmatic agreement.
- The Army would ensure that the design of the proposed facilities would be developed in accordance with the North Post/Ladd Field Distinguishable Area Design Guidelines.

Table ES-2
Summary of Mitigation Measures

Socioeconomics and Environmental Justice

- During construction, safety measures would be followed to protect the health and safety of residents, especially children.

Transportation

- Monitor traffic levels on affected roadways and delays at affected intersections and take appropriate actions to minimize development-related traffic, such as requiring development-related vehicles to use alternate access gates, designated travel routes, and off-peak travel times.
- To help reduce risks to children and to minimize the potential for pedestrian and vehicle accidents and to maximize safety and awareness for those in the affected community areas, the following actions are recommended:
    - Alerting residents when construction- and demolition-related activity and traffic are planned to be in their areas, including distributing and posting construction and demolition schedules;
    - Requiring construction and demolition vehicles to use flashing lights and possibly auditory warning devices when traveling through areas where children are present;
    - Stationing crossing guards at selected intersections and play areas at certain times to adequately safeguard children and others; and
    - Preparing and distributing a comprehensive traffic routing and pedestrian protection plan before demolition and construction begin in the neighborhoods. The plan preparation would include input and representation from residents in the affected communities and other knowledgeable personnel from Fort Wainwright.

Hazardous and Toxic Substances

- Army Alaska Family Housing would notify workers of any potential health hazards, and the workers would use proper health and safety measures. Also, Army Alaska Family Housing would employ personnel trained and certified by the Occupational Safety and Health Administration for any activities potentially involving exposure to hazardous substances.
- Army Alaska Family Housing would use best management practices, such as secondary containment, fencing, and signs, to ensure that workers and residents were not exposed to hazardous materials and that hazardous materials are not released to the environment.
- Persons working with or near fresh paint and asphalt would protect themselves by wearing appropriate clothing, washing their hands before eating or smoking, and bathing at the end of each workday.
- The construction contractors would be responsible for preventing paint and fuel spills by properly storing and handling these materials, paying attention to the task at hand, and driving safely.
- Construction sites would be fenced and access would be properly controlled in order to prevent residents, particularly children, from entering these sites.
- Pursuant to the Federal Facilities Agreement, the Army, in coordination with the Alaska Department of Environmental Conservation and the US Environmental Protection Agency will perform remedial actions necessary for the property to be safe for residential use and establish institutional and land use controls that Army Alaska Family Housing, and by extension its subcontractors, workers, and customers/residents, would adhere to.
- Portions of active remediation sites where residents, particularly children, could come into contact with contaminants would be fenced or otherwise controlled.
- In the event that a new potentially-contaminated site is identified, appropriate interim controls would be immediately implemented in the potentially-affected area to prevent resident exposure.
- Army Alaska Family Housing, and by extension its subcontractors, workers and customers/residents, would comply with all relevant engineering, land use and institutional controls as well as other requirements from the applicable record of decision. For example, Army Alaska Family Housing

Table ES-2
Summary of Mitigation Measures

would comply with requirements for dig permits, worker certification, and notification requirements. • Army Alaska Family Housing would coordinate with Army safety personnel for any construction in areas that potentially contain munitions and explosives of concern. All individuals involved in ground-disturbing activities in the affected areas would receive munitions and explosives of concern familiarization training. If applicable, certified unexploded ordnance technicians would oversee ground-disturbing activities. In the event that munitions and explosives of concern or suspected munitions and explosives of concern are discovered on the RCI footprint, all intrusive or ground-disturbing activities would cease, and the Fort Wainwright Provost Marshall's Office would immediately be notified. The munitions and explosives of concern or suspected munitions and explosives of concern would not be disturbed in any way until qualified personnel could dispose of it. • The Army would conduct a comprehensive survey of lead levels in soil in all family housing areas where structures existed prior to 1978 and where exterior lead-based paint could reasonably be expected to have come into contact with soil. Based on the results of the survey and applicable regulations, appropriate abatement measures would be implemented. • Prior to the lead in soil survey and abatement, ground cover would be maintained to prevent human contact with bare soil. Where vegetative ground cover is not in place, bare soil would be covered with a thick layer of wood chips, sand, top soil or other appropriate materials. Snow and ice also provide a natural impediment to soil contact during part of the year. Residents would be informed of the potential for elevated soil lead levels and provided a fact sheet detailing methods to protect children from exposure. The Bassett Hospital would test the blood-lead levels of children as requested by parents and guardians. • Army Alaska Family Housing would comply with Fort Wainwright's integrated pest management plan, which, among other provisions, forbids applying pesticides on playgrounds, wetlands, and surface water bodies and keeps application to a minimum in other sensitive areas. • Buildings would be equipped with radon vapor ventilation systems. • Establishing dedicated smoking areas and prohibiting open flames near flammable materials would greatly reduce the risk of fire.

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SECTION 1.0
PURPOSE, NEED, AND SCOPE

1.1 BACKGROUND

The Army operates and maintains approximately 90,000 family housing units at its installations throughout the United States. More than 75 percent of the units do not meet current Army housing standards. Despite this, at most installations, demand for adequate on-post housing exceeds supply. This forces many Soldiers and their families to live in housing that is in need of repair or renovation or to live off-post, where the cost and quality of housing vary considerably. Often, the costs to Soldiers and their families to live off-post are greater than their Basic Allowance for Housing (BAH). The Army estimates that as much as $6 billion would be needed to bring its housing up to current standards and to address the deficit of housing.

In recognition of these problems, Congress enacted Section 2801 of the Fiscal Year 1996 Defense Authorization Act (Public Law 104-106, codified at Title 10 of the United States Code [USC], Sections 2871-2885). Also known as the Military Housing Privatization Initiative (MHPI), this provision of law creates alternative authorities for improving and constructing military family housing. The legislative intent of Congress in enacting these additional authorities was to enable the military to obtain private sector funding to satisfy family housing requirements. By leveraging scarce public funding, the Army can obtain private sector funds for constructing, maintaining, managing, renovating, replacing, rehabilitating, and developing Army family housing and ancillary supporting facilities.[1] The Army's implementation of the MHPI authorities is known as the Residential Communities Initiative (RCI).

Fort Wainwright lies 120 miles south of the Arctic Circle and has real property holdings that total approximately 1,541,000 acres, generally divided into four distinct areas: Main Post (13,700 acres), the Yukon Maneuver Area (247,952 acres), the Tanana Flats Training Area (over 655,000 acres), and the Donnelly Training Area (624,000 acres). The Main Post of Fort Wainwright, on which the proposed action would occur, rests on a flat alluvial plain. It is bordered on the west by the city of Fairbanks and on the other three sides by open space that is owned privately and by the State of Alaska. The Main Post includes the Ladd Field National Historic Landmark (NHL) and the Ladd Air Force Base (AFB) Cold War Historic District. Fort Wainwright is listed on the National Priorities List. The mission of Fort Wainwright includes training and maintaining assigned units in a state of readiness for national defense, training personnel and testing equipment under extreme cold weather conditions, and providing space, facilities, and support for various military and civilian users.

1.2 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

Consistent with the MHPI authorities, Fort Wainwright proposes to transfer responsibility for providing housing and ancillary supporting facilities to Army Alaska Family Housing, a limited liability company (LLC) composed of the Army and Actus Lend Lease. Fort Wainwright would convey via lease all on-post military family housing units and selected ancillary supporting facilities and would grant a 50-year ground lease (with an optional 25-year extension) for the land on which the housing and facilities are located to Army Alaska Family Housing. Fort Wainwright also would

[1] According to 10 USC § 2871, the term *ancillary supporting facilities* means facilities related to military housing units, including facilities to provide or support elementary or secondary education, child care centers, day care centers, tot lots, community centers, housing offices, dining facilities, unit offices, and other similar facilities for the support of military housing.

lease additional non-housing areas for Army Alaska Family Housing's use to construct new housing and operate ancillary supporting facilities.

The Army believes it to be beneficial to maximize the on-post population of Soldiers and their families; improving sub-standard family housing encourages military families to remain on-post. At Fort Wainwright, an on-post military community is desirable because of a number of factors including proximity to on-post facilities, such as schools, the public exchange (PX), commissary, and recreational facilities, and shorter commute times for Soldiers in an arctic environment.

The purpose of the proposed action is to improve Army family housing and ancillary supporting facilities at Fort Wainwright. The proposed action is needed to provide affordable quality housing and ancillary supporting facilities to Soldiers and their families by replacing or improving existing family housing units, bringing them up to current Army standards.

The age and condition of the Fort Wainwright family housing units vary. The Fort Wainwright RCI office determined that approximately 29 percent of the units are in good condition, 21 percent are in fair condition, and 50 percent are in poor condition.

Fort Wainwright expects Army Alaska Family Housing to achieve the following goals:

- Ensure that eligible Soldiers and their families have access to quality, attractive, and affordable housing by upgrading inadequate family housing and by building new housing to address current substandard housing conditions at Fort Wainwright;
- Improve the appearance and functions of the residential community, while meeting environmental stewardship responsibilities;
- Provide ancillary supporting facilities, such as community centers and neighborhood playgrounds, to enhance Fort Wainwright's residential community;
- Maintain positive relations with the communities that surround Fort Wainwright; and
- Provide for the effective management and operation of existing, renovated, and new housing units and ancillary supporting facilities over the long term.

1.3 SCOPE OF ANALYSIS

This Environmental Assessment (EA) has been developed in accordance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ) (Title 40 of the Code of Federal Regulations [CFR] Parts 1500-1508) and the Army (32 CFR Part 651). Its purpose is to inform decision makers, government agencies, and the public of the potential environmental consequences of implementing the proposed action and alternatives.

In the EA, the potential environmental effects of implementing the Army RCI project at Fort Wainwright are identified, documented, and evaluated. Section 2.0 is a description of the proposed action. Section 3.0 is a description of the alternatives to the proposed action, including a No Action Alternative, and includes an explanation of why certain alternatives were not evaluated in detail. Section 4.0 is a description of the environmental conditions at Fort Wainwright that could be affected by the proposed action; the potential environmental effects that could occur with the implementation of each of the alternatives are evaluated in detail in this section. Section 5.0 presents conclusions regarding the potential environmental effects of the proposed action and alternatives.

This EA is also an evaluation of the environmental and socioeconomic effects that would be expected to occur with implementation of the proposed action, as reflected in the Community Development and Management Plan (CDMP), the agreement ultimately negotiated by and between Fort Wainwright and Army Alaska Family Housing; a summary of the CDMP is included in Appendix A. Because of financial, environmental, or other reasons, certain choices—such as alternative housing sites, housing densities, housing formats (high-rise vs. low-rise), types of ancillary supporting facilities, and timing of specific Fort Wainwright actions—were eliminated from further consideration during CDMP negotiations.

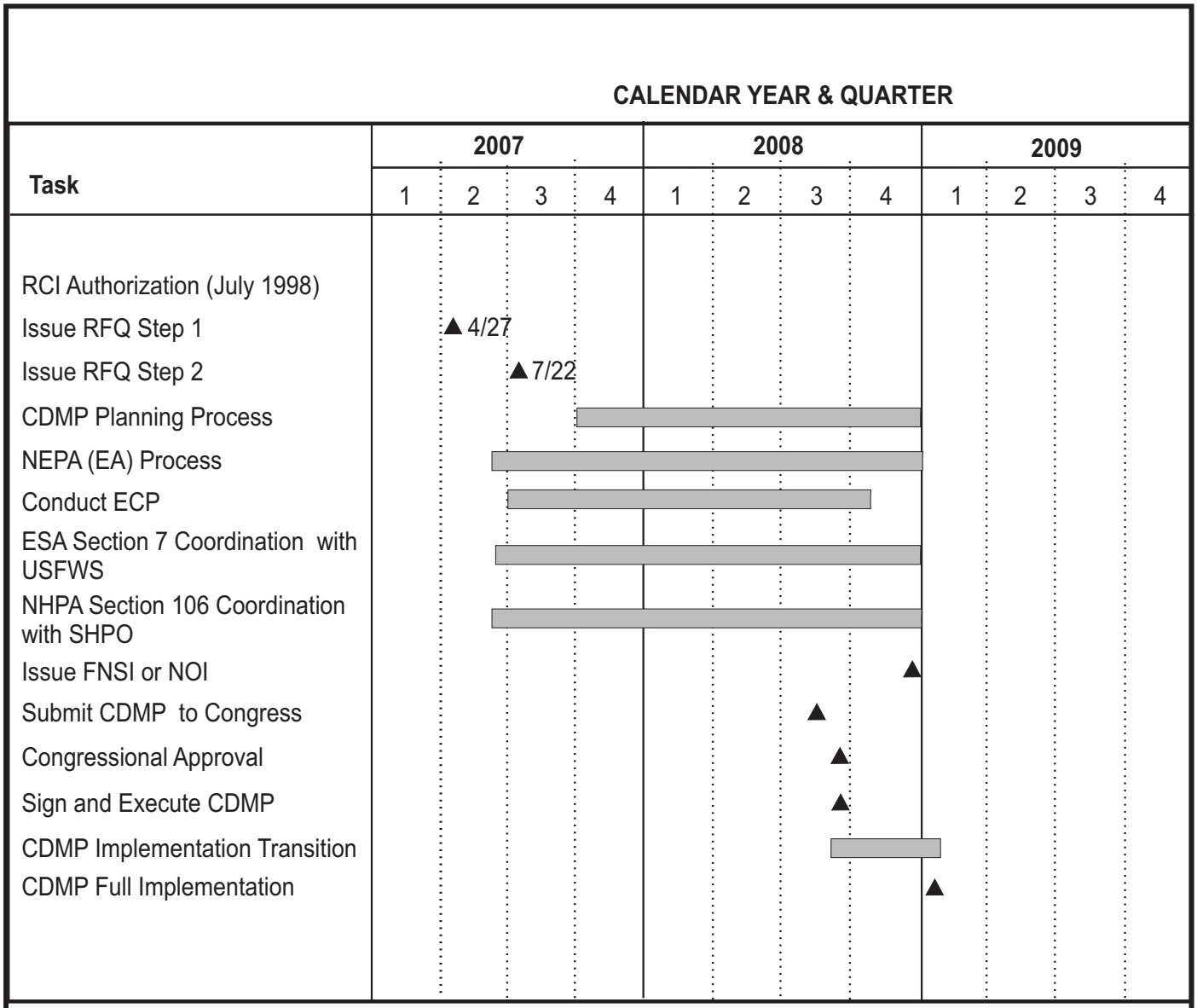
An interdisciplinary team of environmental scientists, biologists, ecologists, geologists, planners, economists, engineers, archaeologists, historians, and military technicians reviewed the proposed action in light of existing conditions, and team members have identified relevant beneficial and adverse effects associated with the action. The EA focuses on effects likely to occur within the project area, which generally consists of the present family housing areas and new areas to be used for family housing. The document is an analysis of the direct effects (those caused by the proposed action and occurring at the same time and place) and indirect effects (those caused by the proposed action and occurring later in time or farther away but still reasonably foreseeable). The potential for cumulative effects is also addressed, and mitigation measures are identified, where appropriate.

This EA focuses on evaluating environmental effects that are reasonably foreseeable, approximately within the first five years of implementation of the CDMP (through 2013). This is the period during which Army Alaska Family Housing would demolish or renovate existing housing units, construct new family housing units, and operate and maintain the housing units and ancillary supporting facilities. Projecting potential environmental effects beyond 2013 is speculative, so such effects were not analyzed in this EA. Housing operation and maintenance and associated impacts would begin during the first five years of CDMP implementation and would continue beyond that period. Should any substantive changes be made to the proposed action described and evaluated in this EA, Fort Wainwright would consider whether additional NEPA analysis is required to address those changes. Also, as future construction, demolition, and renovation are proposed, appropriate NEPA analysis would be prepared to evaluate those activities.

Identified in this EA are matters related to environmental considerations and decision making on proposed RCI actions. Consistent with Army and other federal regulations and policies, the Army must undertake numerous other actions to achieve its objectives. Many of these other actions result in the availability of information for use in this EA. Figure 1-1 identifies the timeline for the EA process, in relation to other actions that accompany the RCI effort.

1.4 PUBLIC INVOLVEMENT

The Army at Fort Wainwright invites public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the proposed action, including minority, low-income, disadvantaged, and Alaska Native groups, are urged to participate in the decision-making process.



LEGEND

Period of Task ▲ Milestone

CDMP = Community Development and Management Plan
EA = Environmental Assessment
ECP = Environmental Condition of Property
ESA = Endangered Species Act
FNSI = Finding of No Significant Impact
NEPA = National Environment Policy Act
NHPA = National Historic Preservation Act
NOI = Notice of Intent
RFQ = Request for Qualifications
SHPO = State Historic Preservation Officer
USFWS = United States Fish and Wildlife Service

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RCI Project Schedule

Fort Wainwright, Alaska

Tetra Tech, Inc.

Figure 1-1

The Army's NEPA guidance provides for public participation in the NEPA process. If the EA demonstrates that the proposed action would not result in significant environmental effects, the Army may issue a Finding of No Significant Impact (FNSI). Following issuance of the EA and draft FNSI, the Army would observe a 15-day period, during which agencies and the public could submit comments on the proposed action, the EA, or the draft FNSI. After considering these comments, the Army may approve the FNSI and implement the proposed action. If, however, during development of the EA, the Army determines that significant effects would result, it would issue a Notice of Intent to prepare an Environmental Impact Statement. Throughout this process, the public may obtain information on the status and progress of the proposed action and the EA by contacting the Fort Wainwright NEPA Coordinator, Jessica Garron at 907-361-3001.

Agencies anticipated to be involved in the NEPA process include the US Fish and Wildlife Service, Alaska State Historic Preservation Office, the US Army Corps of Engineers, National Park Service, Alaska Department of Environmental Conservation, Alaska Department of Transportation, US Department of the Interior, US Environmental Protection Agency, US Bureau of Land Management, City of Fairbanks, City of North Pole, Fairbanks North Star Borough, and the Alaska Department of Fish and Game.

1.5 FRAMEWORK FOR DECISION MAKING

A decision on whether to proceed with the proposed action rests on numerous factors, such as the Army's mission requirements for Fort Wainwright, the schedule for project implementation and completion, availability of funding, and environmental considerations. In addressing environmental considerations, the Army is guided by several relevant statutes (and implementing regulations) and Executive Orders that establish standards and provide guidance on environmental and natural resource management and planning. These include NEPA and the following regulations:

- Clean Air Act;
- Clean Water Act;
- Coastal Zone Management Act;
- Migratory Bird Treaty Act;
- Noise Control Act, Endangered Species Act;
- Farmland Protection Policy Act;
- National Historic Preservation Act;
- Archaeological Resources Protection Act;
- American Graves Protection and Repatriation Act;
- American Indian Religious Freedom Act;
- Resource Conservation and Recovery Act;
- Toxic Substances Control Act;
- Executive Order 11593 (Protection and Enhancement of the Cultural Environment);
- Executive Order 11988 (Floodplain Management);
- Executive Order 11990 (Protection of Wetlands);
- Executive Order 12088 (Federal Compliance with Pollution Control Standards);

- Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations);
- Executive Order 13045 (Protection of Children from Environmental Health Risks and Safety Risks); and
- Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management).

Where useful to provide a better understanding of project issues, key provisions of these statutes and Executive Orders are described in more detail in the text of the EA.

SECTION 2.0
PROPOSED ACTION

This section presents information on the Army RCI program and on Fort Wainwright's proposed action. Section 2.1 is a description of the Army RCI program in general and the legislative authorities in detail. Section 2.2 is a description of the proposed action, which is the Army's preferred alternative. Other alternatives are presented in Section 3.0.

Consistent with authorities contained in the 1996 MHPI, Fort Wainwright proposes to transfer responsibility for providing family housing and ancillary supporting facilities to Army Alaska Family Housing, which has developed a CDMP to implement the MHPI at Fort Wainwright. The Army would accomplish this by conveying under a lease all existing on-post family housing units and selected ancillary supporting facilities to Army Alaska Family Housing. Fort Wainwright also proposes to grant a 50-year ground lease (with an optional 25-year extension) for the areas on which the housing and facilities are located and for additional non-housing areas to Army Alaska Family Housing.

As the CDMP was developed, it was fine tuned to meet Fort Wainwright's needs for attaining affordable quality housing and other facilities, while minimizing or avoiding any potential environmental impacts. The CDMP Development Brief in Appendix A is an overview of the plan. In accordance with the CDMP, Fort Wainwright proposes to convey via lease 1,850 family housing units to Army Alaska Family Housing and to provide Army Alaska Family Housing with a 50-year lease of the underlying land, approximately 626 acres. Of the 1,850 family housing units, 1,540 currently exist; construction activities would eventually increase the housing inventory by 310 units. Army Alaska Family Housing would take the following actions:

- Renovate 321 units;
- Demolish 685 units; and
- Construct 524 units.

As a result of Army Alaska Family Housing actions, Fort Wainwright would have a final family housing inventory of 1,689 units, a decrease of 161 units, or 8.7 percent, from the initial housing inventory. The final housing inventory represents an increase of 149 units, 9.7 percent, from the current inventory of 1,540 units.

The initial development plan would be implemented over five years, beginning in 2009. Army Alaska Family Housing would construct new housing units before demolishing or renovating existing units to prevent any short-term housing shortages. Some families may have to move off-post or into a new housing area during the build out period.

2.1 THE ARMY RESIDENTIAL COMMUNITIES INITIATIVE

2.1.1 Army RCI Procedures

The MHPI (10 USC 2871-2885) grants the Department of Defense and the military services new authorities for obtaining family housing and ancillary supporting facilities. The essence of the authorities is that they comprehensively allow access to private sector financial and management

resources for improving, constructing, operating, and maintaining family housing. The Army RCI program implements the 1996 MHPI.

The goal of the Army RCI, simply stated, is to provide affordable, quality housing for Soldiers and their families. Implementing RCI projects, however, is complex. Projects typically involve large numbers of family housing units (normally the installation's entire inventory), and they represent sizable financial stakes for both the private-sector developer and the Army. Moreover, project implementation is complex because of the considerable amount of planning, coordination, and oversight that must occur among diverse functions, such as engineering, finance, real estate, housing management, law, and others, including the local community.

An RCI project normally addresses an installation's entire inventory of family housing. It might also address required ancillary supporting facilities, such as community centers, neighborhood playgrounds, housing offices, and maintenance facilities. An RCI project typically has seven major steps, described below.

Decision to Participate in the Army RCI. The initial decision whether an installation will participate in the Army RCI rests with the Garrison Commander. The Commander's decision can be influenced by many considerations, such as the general condition and availability of family housing for Soldiers assigned to the installation, the number of personnel on waiting lists for family housing, the length of time required to obtain family housing, and private-sector housing costs near the installation. A Commander's decision to participate in the initiative does not necessarily mean that an RCI project will ultimately occur; rather, it means that planning for the project may proceed.

Preliminary Determination of Requirements. An RCI project has five very visible components: (1) construction of new housing, (2) demolition of housing that is obsolete or beyond economical repair or rehabilitation, (3) renovation of housing, (4) provision of ancillary supporting facilities, and (5) operation and maintenance of the housing inventory. Upon an installation's entry into the Army RCI, information to support decisions about requirements for each component must be gathered and verified. Also, suitable locations for siting new housing or ancillary supporting facilities may have to be identified.

To help reach these preliminary determinations, the Garrison Commander initiates several studies and reports. Among these are a Report of Availability (identifying areas that might be leased to a developer/private sector entity, referred to as the development entity), an Environmental Condition of Property report (examining potential contamination of the proposed lease sites), and Department of the Army (DA) Form 337 (identifying buildings and improvements that might be conveyed to the development entity as part of the CDMP). The Garrison Commander may begin analysis of potential environmental effects at this early stage of the project's planning. Other studies that might also be initiated include a Housing Market Analysis and engineering studies pertaining to utility capacity, soil testing, and boundary delineation. For RCI projects involving housing eligible for listing in the National Register of Historic Places (NRHP), the Garrison Commander should initiate consultation under Section 106 of the National Historic Preservation Act (NHPA). In all cases, the Garrison Commander initiates coordination with local school districts to ensure local officials' ability to plan for and accommodate the educational needs of children.

Two-Step Request for Qualifications. The Army RCI Project Office, located within the Headquarters Department of the Army, oversees a two-step Request for Qualifications (RFQ) solicitation. Step 1 of the RFQ process identifies potential development entities that are highly

qualified with respect to experience, financial capability, and organization (corporate level), past performance, and small business utilization (general history). Offerors meeting these requirements make up an exclusive competitive range. In step 2 of the RFQ process, a development entity is awarded a contract to partner with the Army and create a CDMP. This award is made on the basis of the firm's submittal, which addresses the preliminary concept, financial return, organizational capabilities, and small business plan.

Negotiation of the CDMP. Requirements for construction, demolition, renovation, and ancillary supporting facilities, as well as future operation and maintenance of family housing, are identified and agreed upon through negotiations between an installation and its development entity. It is during this planning and negotiating process that a variety of options or alternatives for family housing (e.g., housing sites and housing densities) and ancillary supporting facilities (e.g., types of facilities and possible locations) are considered, and some are dismissed for cost, financial, or other reasons. During this time, the NEPA analysis is conducted and is coordinated with development of the CDMP. Through this coordination, some potential alternatives are also dismissed because of environmental concerns, while any remaining environmental issues are considered, and appropriate mitigation measures identified.

Throughout development of the CDMP the Army evaluates the development entity's approaches to various issues bearing on environmental stewardship. These include matters affecting potential savings with respect to energy conservation, recycling (both during demolition, renovation, and construction and during later home ownership), natural landscaping and vegetative cover, and similar smart building and operational practices. The resulting CDMP contains all details of the RCI project, including all work to be done, financing arrangements, and schedules.

Approval of the CDMP. The Garrison Commander submits the negotiated CDMP through command channels to Headquarters, Department of the Army for concurrence. The CDMP is then submitted to the Department of Defense (DoD) for approval, and the congressional committees responsible for MHPI oversight are notified. The approval process authorizes the installation's access to the Family Housing Improvement Fund, a revolving fund established for the MHPI, as well as the installation's use of the MHPI's authorities as set forth in the negotiated CDMP.

Ratification of the CDMP. If the DoD approves the use of statutory authorities and the revolving fund, the installation and the development entity sign the CDMP. Analysis of potential environmental effects in accordance with NEPA, as well as compliance with Section 106 of the National Historic Preservation Act and Section 7 of the Endangered Species Act, is completed before the CDMP is approved (signed).

Transfer of Operation and Implementation of the CDMP. The CDMP is implemented in accordance with its terms.

2.1.2 Legislative Authorities

The scope of an RCI project is determined primarily by analyzing the condition of existing housing and by considering additional housing requirements to address the installation's deficit of affordable quality housing. These factors drive the amount of construction, demolition, and renovation and the number of ancillary supporting facilities needed at an installation. Negotiation of the CDMP includes selecting the appropriate legislative authorities to support fulfillment of the installation's family housing needs. These provisions give the Army and the development entity exceptional flexibility to create successful business arrangements for the benefit of Soldiers and their families. The authorities (with their US Code citations) are summarized below.

Direct Loans. The Army may make direct loans to an eligible entity for the acquisition or construction of housing units that are suitable for use as military family housing (10 USC Section 2873[a][1]).

Loan Guarantees. The Army may guarantee a loan to an eligible entity if the entity use the proceeds of the loan to acquire or construct housing units that the Army determines to be suitable for use as military family housing (10 USC Section 2873[b]).

Investment in Nongovernmental Entities. The Army may make investments in an eligible entity carrying out projects for the acquisition or construction of housing units suitable for use as military family housing. An investment may take the form of a limited partnership interest, a purchase of stock or other equity instruments, a purchase of bonds or other debt instruments, or any combination of such forms of investment (10 USC Section 2875[a], [b]).

Differential Lease Payments. Pursuant to an agreement to lease military family housing, the Army may pay the lessor an amount in addition to the rental payments made by military occupants to encourage the lessor to make the housing available to military members (10 USC Section 2877).

Conveyance or Lease of Existing Property and Facilities. The Army may convey or lease property or facilities, including ancillary supporting facilities, to eligible entities for purposes of using the proceeds of such conveyance to carry out activities under the initiative (10 USC Section 2878).

Conformity with Similar Local Housing Units. The Army will ensure that the room patterns and floor areas of military family housing units acquired or constructed under the initiative are generally comparable to the room patterns and floor areas of similar housing units in the locality concerned. Space limitations by pay grade on military family housing units provided in other legislation will not apply to housing acquired under the initiative (10 USC Section 2880[a], [b]).

Ancillary Supporting Facilities. Any project for the acquisition or construction of military family housing under the initiative may include the acquisition or construction of ancillary supporting facilities (10 USC Section 2881).

Lease Payments Through Pay Allotments. The Army may require Soldiers who lease housing acquired or constructed under the initiative to make lease payments by allotments from their pay (10 USC Section 2882[c]).

2.2 IMPLEMENTATION OF THE PROPOSED ACTION

The proposed CDMP includes a number of actions that Fort Wainwright and Army Alaska Family Housing would take. This section is an overview of the CDMP, the development brief of which is provided in Appendix A. Under the CDMP, Army Alaska Family Housing would respect and respond to the natural and built environment to minimize impact and to capitalize on the value of existing conditions. Planning would support the following environmental principles:

- Housing areas would be designed to respect the natural systems of topography, vegetation, and drainage;
- Developed areas would be designed to minimize grounds work, aboveground utilities, and drainage;

- Existing landscape would be preserved in all possible situations;
- The landscape would be populated with native plant materials;
- A water management system would be designed to handle both the quantity and quality of stormwater runoff;
- Community design would reduce dependency on the car;
- The sense of community would be heightened with improved and linked open spaces, strategic tree locations, trail systems, activity areas, and street layouts that enhance the quality of outdoor life;
- Existing landscapes would be accessed and integrated with new landscapes; and
- The planned development would maximize water conservation and energy conservation and would incorporate sustainable design measures.

2.2.1 Community Development and Management Plan Provisions

2.2.1.1 Lease of Land

The Army would grant Army Alaska Family Housing a 50-year lease (with an optional 25-year extension) of approximately 626 acres at Fort Wainwright. Approximately 522 of those acres are currently used for family housing and family housing support. The Army also would include in that lease undeveloped/vacant parcels of approximately 104 acres for new family housing and ancillary supporting facilities to be constructed, operated, and maintained by Army Alaska Family Housing. These areas, collectively referred to as the RCI footprint, are identified in Figure 2-3. Lease of these parcels would be subject to several conditions imposed by the Army. The lease would be subject to all existing easements, or those subsequently granted, as well as to established access routes for roadways and utilities located on, or to be located on, the premises. The lease would include clauses addressing the following:

- Prohibit Army Alaska Family Housing from storing hazardous wastes (above those quantities generated in routine operations and immediately disposed of) or from taking any actions that would cause irreparable injury to the land. Army Alaska Family Housing would be required to comply with all federal, state, interstate, or local applicable laws, regulations, conditions, or instructions affecting its activities. The Army also would include clauses in the leases permitting the Army's periodic inspection of the property to ensure its safe condition and its proper use in accordance with the terms of the lease.
- Prohibit the discharge of waste or effluent from the premises in such a manner that the discharge would contaminate soils, streams, or other bodies of water or otherwise become a public nuisance, by obtaining and implementing a municipal separate stormwater sewer system permit for daily operations and preparing and implementing a stormwater pollution prevention plan (SWPPP) for individual construction projects.
- Require the prompt reporting of any leakage, blockage, or other malfunction of the sanitary sewer lateral leading to the sanitary sewer system.
- Prohibit the removal or disturbance of, or causing or permitting to be removed or disturbed, any historical, archaeological, architectural, or other cultural artifacts, relics, remains, or objects of antiquity. If such items were discovered, Army Alaska Family Housing would be required immediately to notify the Garrison Commander or designated representative and to protect the site and the material from further disturbance until the

Garrison Commander or designated representative gives clearance to proceed. The Army has reviewed and considered the Capehart-Wherry Neighborhood Design Guidelines in planning RCI actions that affect Capehart- and Wherry-era housing, associated structures, and landscape features.

- Require maintenance of all soil and water conservation structures and that appropriate measures be taken to prevent or control soil erosion within the premises. These measures would be addressed in permits (e.g., under Section 404 of the Clean Water Act) and in a SWPPP.
- Prohibit timber cutting, mining, removing sand, gravel, or like substances from the ground, burying waste of any kind, or in any manner substantially changing the contour or condition of the premises, except as authorized through permits or by the Garrison Commander or designated representative.
- Require compliance with institutional controls and land use restrictions to preclude the possibility of being a detriment to human health and the environment.

2.2.1.2 Existing Family Housing Areas

Fort Wainwright, shown in Figure 2-1, lies 120 miles south of the Arctic Circle and has real property holdings that total approximately 1,541,000 acres, generally divided into four distinct areas: Main Post (13,700 acres), the Yukon Maneuver Area (247,952 acres), the Tanana Flats Training Area (over 655,000 acres), and the Donnelly Training Area (approximately 624,000 acres). The proposed action would occur at sites within the Main Post (Figure 2-2). The Main Post of Fort Wainwright rests on a flat alluvial plain. It is bordered on the west by the city of Fairbanks and on the other three sides by open space that is owned by the State of Alaska and private landowners.

Existing housing is present within nine neighborhoods at Fort Wainwright: Bear Paw, Bear Paw Extension, Chena Bend, Gertsch Heights, North Town, Northern Lights, Southern Cross, Siku Basin, and Taku Gardens. Tables 2-1 and 2-2 summarize the existing housing. The RCI footprint, which consists of existing housing areas and areas for new development, is shown in Figure 2-3. By 2009, the only remaining undeveloped/vacant parcels within the footprint would be Undeveloped Areas A, B, and C. One of the housing units included in the RCI footprint, Building 1048, is a contributing element to the Ladd Field NHL and the Ladd AFB Cold War Historic District.

Table 2-1
Fort Wainwright Housing (Current)

Neighborhood	2 BR	3 BR	4 BR	5 BR	Total
Bear Paw	32	40	32		**104**
Bear Paw Extension		58		17	**75**
Chena Bend		22	36		**58**
Gertsch Heights		161	19		**180**
North Town		116	36	16	**168**
Northern Lights	194	80	23		**297**
Southern Cross	48	335	72		**455**
SIku Basin		60	5	61	**126**
Taku Gardens		72	1	4	**77**
Total	**274**	**944**	**224**	**98**	**1540**

Table 2-2
Fort Wainwright Housing by Year of Construction (Current)

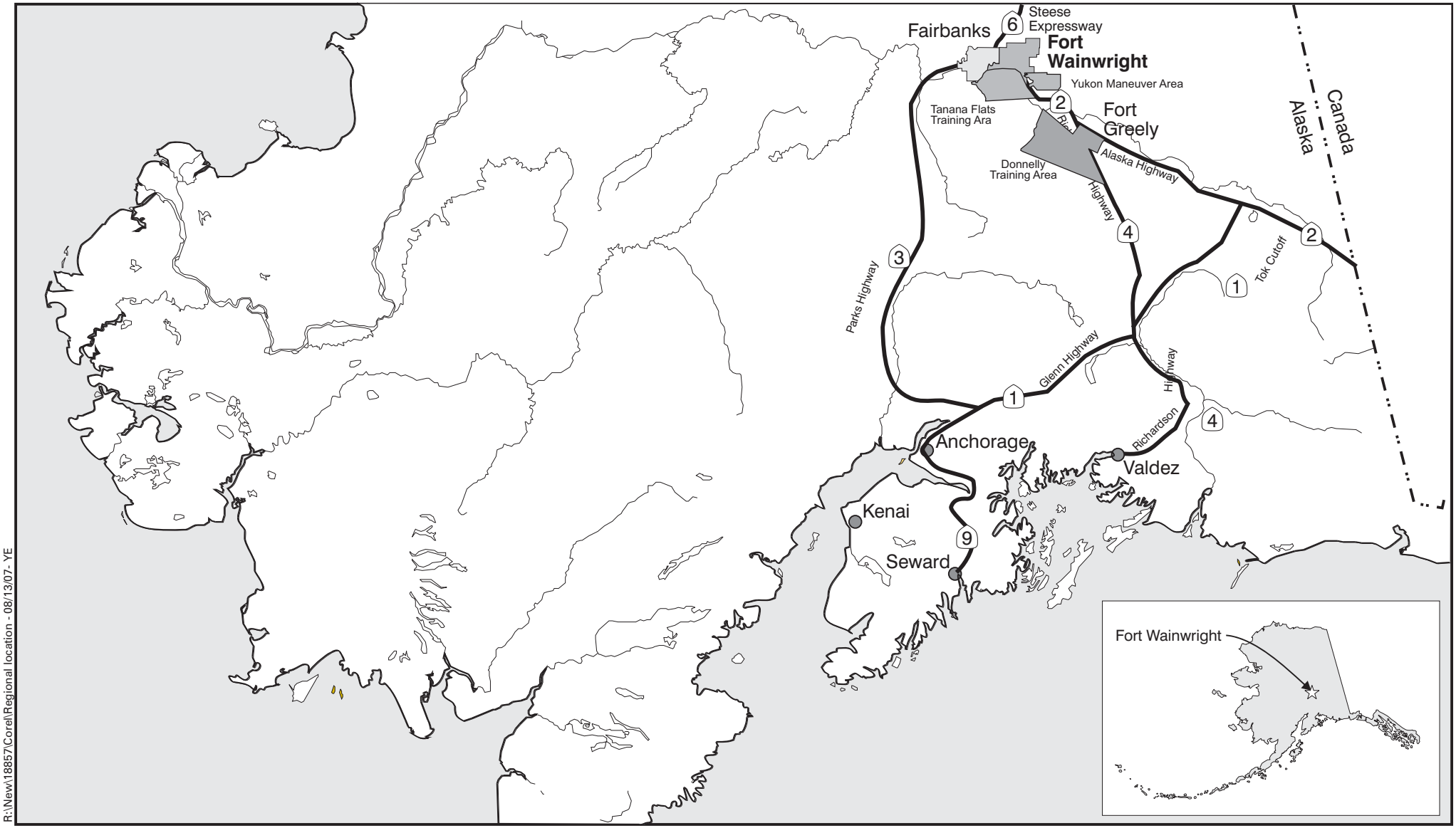
Year Built	2 BR	3 BR	4 BR	5 BR	Total
1941			1		**1**
1949		40			**40**
1952	194	88	23		**305**
1954	80	184			**264**
1959		72			**72**
1990		153	56		**209**
1994		4			**4**
1995			36		**36**
1997			36		**36**
1999		40			**40**
2000			32	4	**36**
2003		36	35		**71**
2004		56			**56**
2005		30			**30**
2007		241	5	94	**340**
Total	**274**	**944**	**224**	**98**	**1540**

2.2.1.3 Development Strategy

In developing the CDMP, Fort Wainwright and Army Alaska Family Housing considered several options for implementing the proposed action. The CDMP Development Brief is included in Appendix A and is incorporated by reference into this description of the proposed action. Also incorporated into this proposed action is compliance with the requirements of the Environmental Concerns for Construction and Renovation Projects, also included in Appendix A. Implementation of the CDMP would require that Army Alaska Family Housing operate and maintain family housing for 50 years (with an optional 25-year extension), as well as construct, operate, and maintain ancillary supporting facilities. All construction and demolition activities evaluated in this EA would occur during the first five years of implementation. The development plan has a variety of options for family housing units, including revitalization and renovation (replacement or repair of various housing components to upgrade units); expansion, modification, or improvement of the floor plan or structure to enhance livability (such as conversion of two-bedroom units into three-bedroom units through expansion, or converting duplex units into one single-family unit); and demolition and replacement with a new housing unit.

Table 2-3 presents the housing inventory that would be conveyed to Army Alaska Family Housing, a total of 1,850 family housing units (the existing inventory of 1,540 units would increase as a result of ongoing Army construction activities); the conveyed housing inventory of 1,850 units serves as the project baseline for impact analysis in this EA.

Over the five-year development period, Army Alaska Family Housing would renovate 321 units, demolish 685 units, and construct 524 units, as shown in Table 2-4. As a result, Fort Wainwright would have a final family housing inventory of 1,689 units, a decrease of 161 units, or 8.7 percent, from the project baseline. Associated with the development activities, there would be no change in the long-term residential population at Fort Wainwright.



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Fort Wainright is located in the Tanana Valley Basin of interior Alaska.

LEGEND:

9 State Highways

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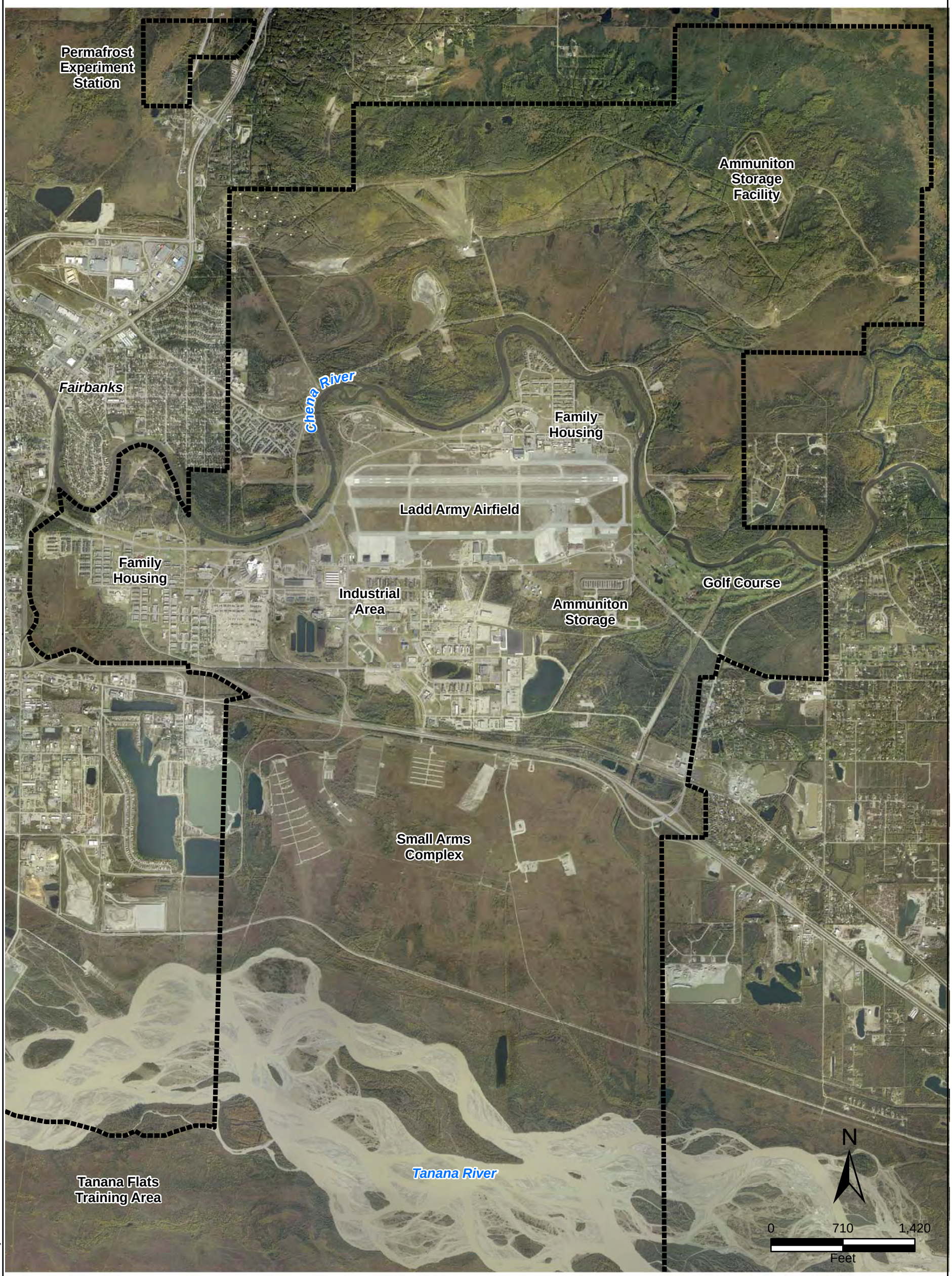
Approximate Scale in Miles

Regional Location

Fort Wainwright, Alaska

Figure 2-1



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The Main Post is bisected by the Chena River and is east of the City of Fairbanks.

Legend

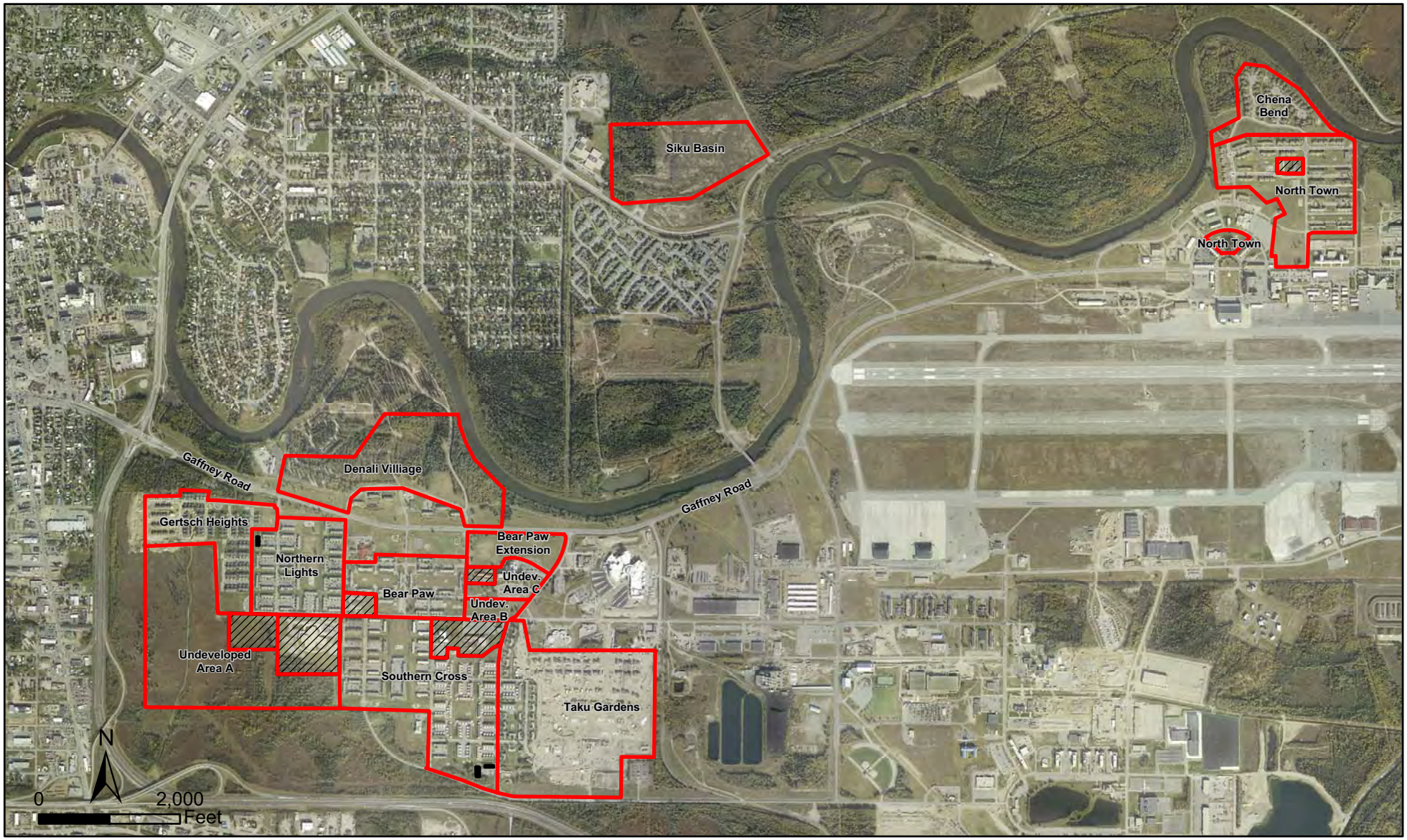
Fort Wainwright Boundary

Main Post

Fort Wainwright
Fairbanks, Alaska

Tetra Tech, Inc

Figure 2-2



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Fort Wainwright RCI Footprint

Fort Wainwright, Alaska

Legend

- RCI Property
- Parcel not to be Conveyed
- Building not to be Conveyed

TETRA TECH

Figure 2-3

Table 2-3
Fort Wainwright Housing to be Conveyed

Neighborhood	2 BR	3 BR	4 BR	5 BR	Total
Bear Paw	32	40	32		**104**
Bear Paw Extension		58		17	**75**
Chena Bend		22	36		**58**
Gertsch Heights		161	19		**180**
North Town		116	36	16	**168**
Northern Lights	194	80	23		**297**
Southern Cross	48	335	72		**455**
Siku Basin		60	5	61	**126**
Taku Gardens		86	95	6	**187**
Denali Village		182		18	**200**
Total	**274**	**1140**	**318**	**118**	**1850**

Table 2-4
Proposed Action Development Summary

Neighborhood	Existing Units	Demolished Units	Renovated Units	New Units	Unaffected Units	Final Inventory
Bear Paw	104	72	0	84	32	**116**
Bear Paw Extension	75	0	0	0	75	**75**
Chena Bend	58	0	58	0	0	**58**
Gertsch Heights	180	0	150	32	30	**212**
North Town	168	0	1	0	167	**168**
Northern Lights	297	297	0	212	0	**212**
Southern Cross	455	244	112	108	99	**319**
Siku Basin	126	0	0	0	126	**126**
Taku Gardens	187	72	0	88	115	**203**
Denali Village	200	0	0	0	200	**200**
Total	**1850**	**685**	**321**	**524**	**844**	**1689**

Army Alaska Family Housing also would construct an approximately 10,000-square foot welcome center/community center. The center and associated parking area would require a parcel of up to an acre and would likely be located in one of the neighborhoods south of Gaffney Road. The center would include space for a theater, workout room, children's play area, community/meeting areas, and offices for leasing agents, residential specialists, and RCI staff. As additional center details become available, the appropriate level of additional NEPA review would be conducted.

All new housing would be built and all development actions would occur within the RCI footprint shown in Figure 2-3. A small developed area that extends south from Gertsch Heights into Undeveloped Area A may be redeveloped. No other development is proposed within Undeveloped Areas A, B, and C.

All residents would be provided a resident guide outlining policies and services applicable to residents of the RCI housing areas. The guide is currently being developed by Army Alaska Family Housing.

Conveyance of Denali Village and the newly constructed portion of Taku Gardens may be delayed. Because no housing redevelopment activities are proposed for these areas, the delayed conveyance would not affect the RCI redevelopment schedule. Conveyance of Denali Village may be delayed due to ongoing site work and is anticipated to happen by late 2009.

Conveyance of the newly constructed portion of Taku Gardens may be delayed due to remediation efforts. Pursuant to a Federal Facilities Agreement (FFA), the Army, in coordination with the Alaska Department of Environmental Conservation (ADEC) and the US Environmental Protection Agency (EPA) will perform remedial actions necessary for the property to be safe for residential use and establish institutional and land use controls that Army Alaska Family Housing, and by extension its subcontractors, workers, and customers/residents, would adhere to. That property would be conveyed when feasible in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. The housing units would not be occupied until they are determined safe for residential use, and any development activities on that property would be done in accordance with a safety plan.

2.2.1.4 Lease of Housing Units and Land

All existing on-post family housing units and selected ancillary supporting facilities would be conveyed under a lease to Army Alaska Family Housing, and supporting land would be leased to Army Alaska Family Housing. The Army would transfer this property with encumbrances, notices, and requirements obligating Army Alaska Family Housing to perform certain actions. As appropriate to each structure or group of structures, the lease would identify the presence of known asbestos-containing materials, lead-based paint, and radon. The lease also would identify the presence of hazardous materials on the property and institutional and land use controls in effect for each portion of the RCI footprint. The Army also would identify any easements and rights-of-way that might affect use of the property. These encumbrances would be in the form of stipulations in the lease and would be binding on the transferee, as well as on any subsequent successors or assigns.

2.2.1.5 Barrier-Free Design

New family housing and ancillary supporting facilities must adhere to the Uniform Federal Accessibility Standards and the Americans with Disabilities Act Accessibility Guidelines promulgated by the Access Board (formerly known as the Architectural and Transportation Barriers Compliance Board), pursuant to the Architectural Barriers Act of 1968, the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990. These standards require that at least five percent of new family housing be designed and built to be accessible, or easily modifiable for access, by persons with physical disabilities.

2.2.1.6 Construction Standards

Construction standards to be applied to family housing reflect consideration of both military specifications and local community building codes. Construction of housing units would be based on sustainable design and development concepts. Army policy is that RCI projects planned or under design through Fiscal Year 2007 must achieve the Gold rating of the Sustainable Project Rating Tool (SPiRiT) process[1]. The SPiRiT process, which is based on sustainable design and

[1]The Sustainable Project Rating Tool (USACE and ACSIM 2002) is derived from the US Green Building Council Leadership in Energy and Environmental Design Green Building Rating System and is based on the *Green Building Reference Guide*.

development concepts, assesses the degree to which the design of a building successfully incorporates consideration of matters such as sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. Using the SPiRiT process improves the environmental and economic performance of facilities by using established and advanced industry principles, practices, materials, and standards.

2.2.1.7 Operation and Maintenance

Army Alaska Family Housing would operate and maintain for 50 years all existing and new family housing units and ancillary supporting facilities, including associated parking lots, sidewalks, existing and new neighborhood centers, tot lots, playgrounds, parks, walking trails, and other amenities, in accordance with the quality standards established in the CDMP. At Fort Wainwright's option, the Army may extend the period of operation and maintenance and the leases of land supporting family housing for an additional 25 years. This extension would be subject to NEPA review.

2.2.1.8 Rental Rates and Payments

The rental rate to be paid by any Soldier would not exceed his or her BAH. Fort Wainwright would continue to categorize family housing by grade group (for example, company grade officer, junior noncommissioned officer).

2.2.1.9 Occupancy Guarantee

Fort Wainwright would not guarantee Army Alaska Family Housing the level of occupancy of the housing units. Under special circumstances, such as large-scale, long-term deployments, Army Alaska Family Housing could rent vacant family housing units to tenants other than service members with dependents, in accordance with the CDMP Family Housing Management Plan, at rental rates that are no less than what a Soldier of the appropriate grade would be charged for the dwelling unit. In such a case, the Garrison Commander must approve Army Alaska Family Housing basic lease agreement.

2.2.1.10 Regulatory Controls

Army Alaska Family Housing created the CDMP with the intent to adopt the current edition of the International One- and Two-Family Dwellings Code by the International Code Council, Inc., with standardized requirements for building, plumbing, mechanical, and electrical by incorporation of a compilation of data from the following national model codes:

- Uniform Building Code;
- Standard Building Code;
- Building Officials and Code Administrators (BOCA) National Building Code;
- Standard Plumbing Code;
- International Building Code;
- BOCA National Plumbing Code;
- Uniform Mechanical Code;
- Standard Mechanical Code;
- Standard Gas Code;
- BOCA National Mechanical Code;

- Code for the Installation of Heat-Producing Appliances; and
- National Electrical Code.

All regulatory requirements and standards would be finalized and agreed to within the CDMP.

2.2.1.11 Utilities

The Army and Army Alaska Family Housing have developed a utility program that promotes energy conservation and reduced utility consumption. Under this program, Army Alaska Family Housing would be responsible for all costs of utilities provided to common areas of the project and all vacant units during the entire project period. Furthermore, Army Alaska Family Housing would be responsible for all costs of utilities in occupied housing units covered by the project until the units were renovated or replaced, utility meters (electricity, gas, or oil) were installed, and a 12-month consumption record was established. When these conditions were met in an entire housing area and after appropriate notice was provided to each service member occupant, the service member would become responsible for the cost of utilities (electricity, gas, and oil) for his or her residence. A portion of the soldiers BAH will be established as a utility allowance. A Soldier could receive a credit for conserving energy, or pay an additional cost if they exceed the allotted amount. In keeping with the goal of creating energy efficient homes that work for today's Soldiers and their families, new homes would feature programmable heating, ventilation, and air conditioning controls and all new homes would be designed to meet both the Leadership in Energy and Environmental Design (LEED) H and Five-Star Energy Star requirements.

2.2.1.12 Police and Fire Protection

Army Alaska Family Housing would reimburse Fort Wainwright for police and fire protection services.

2.2.1.13 Jurisdiction

The legislative jurisdiction at Fort Wainwright's housing areas is concurrent, in that the federal government and the State of Alaska both have jurisdictional authority on the property, allowing both federal and state laws to be enforced there. However, the Army maintains primary responsibilities for all activities on its properties.[2] Implementing the RCI project would not change existing legislative jurisdiction.

2.2.1.14 Implementation Commencement

CDMP implementation would begin in January 2009.

2.2.2 Siting of New Housing

The siting criteria below have been considered in establishing the RCI footprint.

2.2.2.1 Proximity to Existing Housing

New family housing and ancillary supporting facilities should be near existing family housing. From a land use pattern perspective, this approach maintains consistency in adjacent land uses in

[2]Definitions and characteristics of jurisdiction are provided in Army Regulation 405-20, Federal Legislative Jurisdiction.

larger general areas. It also results in residents being close to supporting facilities, such as community clubs, the post exchange, the commissary, and auto service stations. Such proximity helps create a sense of small town neighborhoods, where principal shopping destinations are nearby. Locating new neighborhoods close to existing ones helps to reduce development costs by enabling use of utility corridors and other infrastructure. Finally, keeping family housing in or near a generally developed portion of the installation also avoids opening newer, more distant areas. Risks of potential effects on ecological systems, such as wildlife disturbance and habitat fragmentation, are thus decreased.

2.2.2.2 Sufficient Size

Lack of adequate acreage for proposed housing could adversely affect an otherwise pleasing atmosphere by creating too high a building density. Allocating an adequate amount of property would result in a density that strikes an appropriate balance between residents' desire for space and an appropriate use of land resources. Density for new and redeveloped family housing areas or neighborhoods should meet RCI program guidance standards.

2.2.2.3 Physical Features

Family housing should be sited to avoid steep terrain, areas heavily incised by watercourses, and any stream and wetland buffers and floodplains.

2.2.2.4 Compatible Land Uses

Siting of family housing parcels must not result in incompatible land uses, such as on contaminated properties or adjacent to off-base industrial property.

2.2.2.5 Minimal Loss of Natural, Ecological, and Cultural Resources

Family housing must be sited so as to avoid loss of natural, ecological, and cultural resources, such as wetlands, listed or sensitive species or their habitat, wildlife species' travel corridors, archaeological sites, and structures listed on or eligible to be listed on the NRHP.

2.2.2.6 Military Security

Family housing parcels must be located so as not to enable or encourage residents to interfere with military security requirements or to pose a risk of breaching military security. Housing areas should not be near sites supporting activities to which access is controlled for security reasons.

2.2.2.7 Operational Safety

Family housing parcels should be located away from operational areas to avoid potential safety risks to residents. In addition, family housing also should not be located so that residents would be required to travel past or through training areas while traveling off-post.

SECTION 3.0
ALTERNATIVES

Fort Wainwright has identified four alternatives, as well as a No Action Alternative, to its proposed action. These alternatives are presented below. Only one alternative is carried forward for detailed analysis.

3.1 PREFERRED ALTERNATIVE

Implementing the proposed action, as described in Section 2.2, is Fort Wainwright's preferred alternative. Use of various MHPI authorities, proposed for and identified in the CDMP put forth by Actus Lend Lease and negotiated by Fort Wainwright, would achieve the purpose of and need for the proposed action, as described in Section 1.2. This alternative is evaluated in detail in Section 4.0.

3.2 PARTIAL PRIVATIZATION ALTERNATIVE

Under this alternative, Fort Wainwright would subject only a portion of the installation's family housing to the RCI program. Family housing in good condition (not needing demolition or renovation) would not become part of the RCI program and would be subject to Army maintenance and operational control; an estimated 29 percent of the existing housing units are considered to be in good condition.

Privatization of only a portion of Fort Wainwright's family housing inventory would have three substantial drawbacks. First, the condition of the family housing retained by the Army would change over time, eventually requiring renovation or replacement. Failure to include the entire inventory of housing in the RCI program would only delay action to provide adequate housing for Soldiers and their dependents. Second, two management regimes (the Army's and the development entity's) would not be as cost efficient as one. From a development entity's perspective, maximum potential cash flow also is important to support development and operation of ancillary supporting facilities desired by an installation, activities that traditionally do not provide independent sources of revenue for their sustainment. Finally, partial privatization would not fully meet the Army's purpose of and need for the proposed action because it may result in delayed renovation or replacement of housing units as they age, affecting the adequacy of housing for Soldiers and their dependents. Together, these factors render consideration of partial privatization at Fort Wainwright not feasible, so this alternative was not evaluated in detail in this EA.

3.3 PRIVATE SECTOR RELIANCE ALTERNATIVE

Under this alternative, Fort Wainwright would rely solely on the private sector to meet the housing needs of personnel assigned to the installation. The installation would terminate family housing programs, would dispose of family housing units, and would convert the land now supporting housing areas to other uses.

The alternative is premised, in part, on the view that competitive market forces would lead to the creation of sufficient affordable, quality family housing. Moreover, living on-post has several intangible benefits for Soldiers and their families. These include camaraderie and esprit de corps among the military personnel, a sense of community among family members (especially during Soldiers' deployments), proximity to the workplace (thereby avoiding lengthy commutes), and

Soldiers' comfort level in knowing that family members are residing in a safe community while they are deployed or serving on temporary duty at a distant location.

As a practical matter, terminating Fort Wainwright family housing would prove difficult. If on-post housing were to be terminated over a period of years, without maintenance funding, the housing would become unsuitable due to age or necessity of repairs. Residents could then find themselves living in blighted and partially abandoned neighborhoods. If on-post housing were to be terminated at once, it is unlikely the private sector could provide enough affordable, quality housing, as well as shopping, roads, and other support amenities on short notice.

Renovating many of the Fort Wainwright family housing units is economically sound. Terminating family housing programs would involve abandoning immense investments in those facilities. The various consequences of relying on the private sector and the management difficulties of terminating on-post family housing would prove challenging. In light of the aggregate value of family housing units amenable to renovation, terminating a family housing construction and maintenance program would gravely contravene the fiscal responsibilities Congress expects of the Army. For these reasons, this alternative is not reasonable and is not further evaluated in this EA.

3.4 LEASING ALTERNATIVE

Statutory authorities exist for Fort Wainwright to ensure availability of adequate affordable housing through long-term leases of housing for military family use. Key aspects of the two laws providing these authorities are summarized below.

- *Long-term leasing of military family housing to be constructed.* Family housing obtained through use of this authority, which appears at 10 USC Section 2835, is most often referred to as "Section 801 Housing." Under this authority, the Army may, through competitive contract procedures, have a developer build or renovate (to residential use) family housing units near an installation. Housing units under this authority must meet Department of Defense specifications. The Army may then lease the units for use as family housing for a period of not more than 20 years. At the end of the lease term, the Army has the right of first refusal to acquire all rights, title, and interest in the housing facilities constructed and leased under the contract.

- *Military housing rental guarantee program.* Family housing obtained through use of this authority, which appears at 10 USC Section 2836, is most often referred to as "Section 802 Housing." Under this authority, the Army may award a competitive contract to a private developer or a state or local housing authority to construct or rehabilitate housing on or near an installation that has a shortage of housing for personnel with or without accompanying dependents. Under the contract, the Army guarantees occupancy levels of the housing units at rental rates comparable to those for similar units in the same general market. Housing units under this authority must comply with Department of Defense specifications or, at the discretion of the service secretary, with local building codes. A rental guarantee agreement may not exceed 25 years; it may be renewed only for housing on government-owned land. Under the agreement, the Army may furnish utilities, trash collection, snow removal, and pest control services at no cost to the occupant, to the same extent that such services are provided to occupants of on-post housing.

An important drawback affecting the Section 801 and Section 802 housing programs is related to what is known as budget scoring, the method of accounting for federal government obligations, as required by the Budget Enforcement Act of 1990. Scoring ensures that all government obligations are

accounted for when long-term liability is incurred (i.e., during the first year of a project). Scoring guidelines issued by the Office of Management and Budget require that a project must be fully funded with sufficient budget authority in its first year to cover the government's long-term commitment. In other words, all potential costs associated with long-term leasing or rental guarantee programs must be recognized in the first year, and they must be considered as part of the Army's total obligational authority (the total monies appropriated by Congress for Army use in a given year). For some privatization projects, such as military leased housing, the Army's obligations for scoring purposes amount to the net present value of the total rent under the lease. These amounts can be nearly as great as the sums required under traditional military construction financing for Army-initiated construction of similar facilities.

The Section 801 housing program and Section 802 rental guarantee program only partially address the Army's purpose and need for the proposed action. Due to the scoring guidelines, the Army would obtain either very little or no leverage benefit.

Enactment of new authorities in the MHPI suggests Congress's recognition that the drawbacks of Section 801 and Section 802 outweigh potential benefits to the Army. Although use of either or both authorities would be possible, their use would not be reasonable when compared to the better flexibility and economic advantages of the new authorities offered by the RCI program to the Army and to the Soldiers' families. Accordingly, the off-post leasing alternative is not further evaluated in this EA.

3.5 NO ACTION ALTERNATIVE

Inclusion of the No Action Alternative is prescribed by Council on Environmental Quality regulations. The No Action Alternative serves as a baseline against which the impacts of the proposed action and alternatives can be evaluated.

Under the No Action Alternative, Fort Wainwright would not implement the proposed action but would continue to provide for the family housing needs of its personnel through use of traditional military maintenance and construction procedures. Fort Wainwright would continue to obtain funding for family housing through the congressional authorization and appropriations process. Based on historical trends, the assumption is that the amount of congressional funding for family housing would not change and that the housing maintenance backlog would continue to increase. Any major changes to existing housing or construction of new housing would require that appropriate NEPA analyses be completed before such actions were implemented.

SECTION 4.0
AFFECTED ENVIRONMENT AND CONSEQUENCES

Housing construction at Fort Wainwright was addressed in a previous EA completed in 2004 (US Army Garrison, Alaska 2004). The impact analysis in this EA addresses impacts that would result from the proposed action described in Section 2.2, following the completion of those housing areas addressed in the 2004 EA and their transfer to Army Alaska Family Housing.

The following resources are addressed in this EA:

- Land use;
- Aesthetics and visual resources;
- Air quality;
- Noise;
- Geology and soils;
- Water resources;
- Biological resources;
- Cultural resources;
- Socioeconomics;
- Transportation;
- Utilities; and
- Hazardous and toxic substances.

Following the discussion of each resource's environmental conditions is a discussion of the environmental effects of the proposed action and the no action alternative. Unless otherwise stated, the region of influence (ROI) for the proposed action is defined as the RCI footprint and immediately adjacent lands. The current conditions of a resource's affected environment, along with information presented for the no action alternative, constitute the baseline for analyzing impacts from the proposed action. Both beneficial and adverse effects are identified and discussed in this section. As stated in Section 2.2.1.3, the proposed action would comply with the requirements of the Environmental Concerns for Construction and Renovation Projects included in Appendix A. The impacts of the proposed action, when added to other past, present, and reasonably foreseeable future actions, are presented in Section 4.13, Cumulative Effects Summary. Section 4.14, Mitigation Summary, presents the mitigation measures that would be implemented to minimize effects on affected resources.

4.1 LAND USE

4.1.1 Affected Environment

4.1.1.1 Regional Geographic Setting and Location

Fort Wainwright is in the Tanana Valley Basin of the Alaskan interior, inside the Fairbanks North Star Borough (FNSB). It is approximately 120 miles south of the Arctic Circle and 360 miles

north of Anchorage. The entire Fort Wainwright installation is approximately 1,541,000 acres and lies on a flat alluvial plain. The Main Post is generally bordered on the west by Fairbanks and on the north, east, and south by state and privately owned land.

The Tanana River, a major tributary of the Yukon River, crosses the installation south of the Main Post and skirts the southern edges of Fairbanks. The Chena River crosses east-west through the Main Post and cantonment area, continues west, bisecting Fairbanks, and joins the Tanana River just west of the city.

The climate at Fort Wainwright is characterized by moderate summers and long cold winters; rapid temperature swings are not uncommon. The post receives approximately 22 hours of daylight in the middle of summer and three hours of daylight in the middle of winter. Summer average daily maximum temperatures reach 70°F. During the winter, the lowest temperature readings regularly fall below 0°F. The summer temperature range is from near 30°F to above 90°F, while the winter range is from -65°F to above 45°F.

The area potentially affected by the proposed action is primarily the cantonment area of the Main Post. Because of the presence of the Ladd Army Airfield within this area, the vertical airspace also is considered part of the region of influence (ROI).

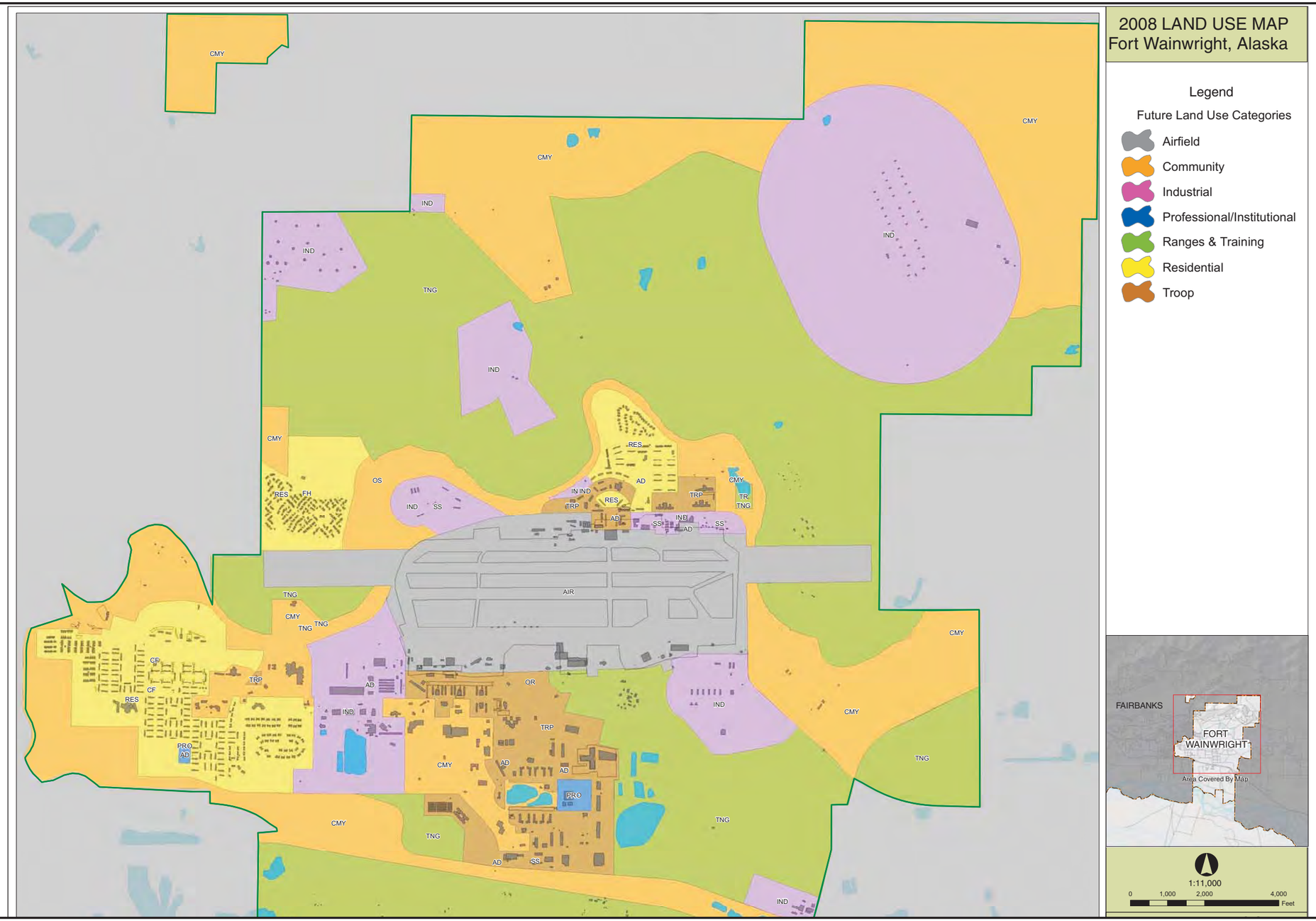
4.1.1.2 Installation Land/Airspace Use

Fort Wainwright is composed of four general areas: the Main Post (13,700 acres), the Yukon Maneuver Area (247,952 acres), the Tanana Flats Training Area (over 655,000 acres), and the Donnelly Training Area (624,000 acres). Fort Wainwright is adjacent to Fairbanks along the Richardson Highway, which provides the primary access to the post. The Richardson Highway transects Fort Wainwright just south of the Main Post cantonment area, providing a good separation from the main training areas. Access to the installation occurs through three gates: Main Gate, Badger Gate, and Trainor Gate.

The Main Post includes the cantonment area, a small arms range complex, and a close-in range complex. The proposed action would occur on approximately 626 acres within the Main Post, including 522 acres used for family housing and family housing support and 104 acres of undeveloped/vacant land.

Figure 4-1 shows current land use for the Fort Wainwright Main Post. The area to the north of the airfield and bounded on the north by the Chena River is commonly referred to as North Post and is the historic center of Fort Wainwright. The portion of the cantonment area south of the airfield is commonly referred to as South Post.

The North Post is characterized by a central commons, with streets extending out in a spoke pattern. This area, together with the airfield, makes up the Ladd Field NHL. Family housing units are intermingled with troop housing and community facilities in the central commons, with additional family housing units clustered in a residential area to the north, along the Chena River. To the west, across the Chena River, is the 400-unit Birchwood housing development, which is outside of the RCI footprint; additional housing is being constructed in the Siku Basin neighborhood, which is within the RCI footprint, north of Birchwood. Other uses in the North Post area include the Engineer Park recreation area to the east and a railway switching yard and warehouse area to the west.



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Land Use

Fort Wainwright, Alaska

Tetra Tech, Inc.

Figure 4-1

Ladd Army Airfield is a major feature of the cantonment area and contains two parallel runways oriented east-west. The airfield is used primarily for helicopter training and airlift activities and to a lesser extent for fixed-wing aircraft (US Army 2005). Support facilities, such as those for operations, maintenance, supply, and storage, are located around the perimeter of the field. The US Bureau of Land Management (BLM) uses some buildings along the north side of the airfield for storage, maintenance, and administration; these buildings serve as the headquarters for the Alaska Fire Service implemented through BLM. The airfield contributes to the Ladd Field NHL, due to its role as a key link in the Alaska-Siberia lend-lease route operation during World War II.

The western portion of the South Post area includes family housing, community facilities, schools, and the Bassett Army Hospital medical complex. East of the family housing area, separated by a slight buffer zone, is the industrial area, which includes the central heating and generating plant and associated structures, railway spurs, and other storage, supply, and maintenance facilities. The laundry and public works administrative buildings are also in this area. East and south of the industrial area are the Post Center and Monterey Lakes area (a.k.a. the Brigade Area), containing troop quarters, maintenance, supply, and storage facilities, administration, operations, sports/fitness complex, visitor housing facility, public exchange, commissary, and other community and recreation facilities. To the northeast of this area is the 18-hole Chena Bend Golf Course. West of the golf course is the Lower Ammunition Supply Point.

The Federal Aviation Administration (FAA) designates the Main Post area airspace as Class D, which is the same designation given to Fairbanks and the surrounding area (SkyVector 2007). The Army uses Ladd Army Airfield primarily for military mission operations and statewide medical services, and the BLM uses it for fire control operations (US Army 2005).

4.1.1.3 Future Development on the Installation

Future development actions at Fort Wainwright are described in Section 4.13.2.

4.1.1.4 Leases and Outgrants

Outgrants on Fort Wainwright represent rights-of-way, special land use permits, easements, and land leases for various government agencies and private companies. Adjacent to the RCI footprint, there is one leased parcel that had been intended for 801 Program Housing, but the agreement for development of housing under that program has expired. The parcel is located on the installation outside of the fenced area. The land is still leased for housing development, but it is no longer restricted to military housing (Hakey 2007). Fort Wainwright's utilities have been privatized, with the utility corridors for the heat distribution, electricity, potable water, and wastewater systems conveyed to the utility provider. The privatization agreement is further described in Section 4.11.

4.1.1.5 Surrounding Land/Airspace Use

The Fort Wainwright Main Post area is surrounded by the planning jurisdiction of the FNSB, which adopted its first regional comprehensive plan in 1984. In 2001, FNSB began to formally update the 1984 plan, culminating in the implementation of a revised regional comprehensive plan in 2005 (FNSB 2005a).

The FNSB has identified the following goals for military land within the borders of the FNSB (FNSB 2005a):

- Support the military presence in the FNSB as an important part of the community and facilitate the integration of its population with that of the FNSB as a whole;
- Encourage cooperative military/community solutions to issues of concern to both parties; and
- Assume planning responsibility for all land to be surplused by the military.

These goals are evident in the way FNSB has used zoning to guide land use and to limit adverse effects of Army training on the areas surrounding Fort Wainwright. None of the zoning surrounding the installation is in conflict with the overall mission of Fort Wainwright (US Army 2005).

The area bordering the western portion of the cantonment area is mainly residential, with intermittent pockets of open space and lands with outdoor recreation opportunities. The residential and recreation uses are compatible with Main Post land uses because they are adjacent to open space and family housing of similar density.

The areas to the north and east of the Fort Wainwright cantonment area are mainly general use areas and, as such, are not subject to any restrictions that would conflict with the Fort Wainwright mission. Areas popular for outdoor recreation and areas of rural agricultural land border Fort Wainwright in this area. There is also residential development to the east of the cantonment area, primarily following the Chena River.

The nearest public airport is Fairbanks International Airport (FIA), five miles west of the Main Post, on the west side of Fairbanks. FIA is a modern commercial terminal with several major airlines offering daily passenger service, and additional airlines adding summer tourist service. Also, several major air cargo companies provide daily cargo services. The five-mile safety radii of Fort Wainwright and FIA overlap, and the two towers share responsibility for controlling airspace in the Fairbanks area (White 2007).

Historically, economic development in the FNSB has been increasing, with associated expansion of residential, commercial, industrial, and institutional development. Fairbanks has also experienced intermittent growth spurts in the past, associated with large projects, such as the Alaska Pipeline. The population of Fairbanks has increased at a rate of 0.6 percent annually, and the growth rate is expected to remain positive into the future (FNSB 2005b).

4.1.2 Consequences

4.1.2.1 Proposed Action

The proposed action is not anticipated to have any adverse effects on land use. There would be a net decrease of 161 housing units under the proposed action. Construction activities would occur on lands already designated for family housing and family housing support use. No effects on surrounding land use are expected because use of this land for housing and community facilities would be compatible with surrounding land use and with FNSB's planning and zoning. No development would occur on undeveloped parcels included in the RCI footprint.

Long-term minor beneficial effects on installation land use are expected with the implementation of the proposed action. The new and renovated family housing would be on and near the location of existing family housing. From a land use pattern perspective, this approach maintains consistency in adjacent land uses over the general, larger area. It also allows residents to live

close to supporting facilities, such as the commissary, school, post office, library, and community center. Locating new housing and community facilities close to existing ones also helps to reduce development costs by enabling use of existing utility corridors and other infrastructure. Keeping family housing in or near a generally developed portion of the installation avoids opening newer more distant areas.

Planning would ensure that housing areas would be designed to respect the existing natural systems of topography, vegetation, and drainage. Existing vegetation would be preserved in all possible situations; otherwise, the landscape would be populated with native plant materials. The sense of community would be heightened with improved and linked open spaces, strategic tree locations, trail systems, activity areas, and street layouts that enhance the quality of outdoor life. New development would be compatibly integrated with existing built and undeveloped areas.

4.1.2.2 No Action Alternative

No adverse effects on land use are expected. No changes to land use would occur under the no action alternative. Residential areas would be maintained as they are, with no changes or improvements expected, other than those undertaken in the course of routine maintenance activities.

4.2 AESTHETICS AND VISUAL RESOURCES

4.2.1 Affected Environment

This section describes the visual resources of the environment in the ROI, defined as the areas within and immediately surrounding the RCI footprint (see Figure 2-3). Potential effects on the aesthetics and visual resources of the project sites are influenced by residents and visitors and vantage points of the project site, described below. Impacts that may affect the visual setting of historic properties are considered in Section 4.8, Cultural Resources.

4.2.1.1 Surrounding Aesthetics and Visual Resources

Fort Wainwright has real property holdings that total approximately 1,541,000 acres, which is generally divided into four distinct areas: Main Post (13,700 acres), the Yukon Maneuver Area (247,952 acres), the Tanana Flats Training Area (over 655,000 acres), and the Donnelly Training Area (624,000 acres). All family housing areas, including the areas associated with the RCI footprint, are on the Main Post.

The RCI footprint is in the western portion of the Main Post. To the west, the city of Fairbanks is visible beyond Fort Wainwright. To the north, south, and east, pockets of isolated residential areas, coniferous forests, and streams are visible beyond Fort Wainwright on land owned by the State of Alaska and private landowners. However, undeveloped areas of open fields and wooded stands surrounding the developed portions of Fort Wainwright dominate the surrounding visual landscape. Also, the Chena River meanders past the RCI footprint areas, and the Richardson Highway is south of the RCI footprint areas and north of the Tanana River.

Fort Wainwright is 120 miles south of the Arctic Circle (City of Fairbanks 2007). On the winter solstice, the sun rises about 11:00 AM and sets about 2:45 PM. Twilight on the ends of those events extends the daylight even more. Snow cover helps to reflect artificial light and moonlight, making even overcast nights brighter. There are almost 22 hours of daylight on June 21st. With twilight factored in, there is little darkness for almost a month in summer.

4.2.1.2 RCI Footprint Aesthetics and Visual Resources

The cantonment area of Fort Wainwright is mostly developed and contains the command and administrative offices, industrial facilities, warehousing, support facilities, and housing and billeting areas. Activities at the installation are in relatively identifiable districts where similar functions and activities are grouped together. Much of the native vegetation of the cantonment area at Fort Wainwright was deforested in the 1940s during the construction of Ladd Field (US Army 2006a). Some native and newly planted vegetation does exist, including coniferous and deciduous forests, high brush, and shrub wetlands. Fort Wainwright's family housing is in the northwest, northeast, and southwest portions of the cantonment area.

The RCI footprint areas consist of approximately 626 acres at Fort Wainwright. The family housing at Fort Wainwright consists of properties constructed between 1941 and 2008. Many older units no longer meet Army standards, though they still maintain historical significance.

The RCI footprint properties are divided into the following neighborhoods: Bear Paw, Bear Paw Extension, Chena Bend, Gertsch Heights, North Town, Northern Lights, Southern Cross, Taku Gardens, Denali Village, and Siku Basin. The northeastern RCI footprint area (Chena Bend and North Town) is between the Chena River and the airfield. The only RCI footprint area on the

north side of the Chena River is Siku Basin, which is surrounded by the river neighborhoods, and forested land. The westernmost RCI footprint area is the largest of the three areas. It consists of Gertsch Heights, Northern Lights, Bear Paw, Bear Paw Extension, Southern Cross, Taku Gardens, and undeveloped areas. It is surrounded by the Chena River, forested areas, open space, and housing and administrative buildings. Additional housing construction is underway in Denali Village. Areas under construction and recently completed have landscaping vegetation that is immature due to recent development and ground-disturbing activities.

These neighborhoods are part of what is collectively referred to as the family neighborhoods visual zone in the Fort Wainwright Installation Design Guide (US Army 2006a). Visual zones are areas that include similar visual characteristics, which define a "look and feel" of an area, together with the dominant features that define its image. Typical visual characteristics include unique buildings, vehicular and pedestrian corridors, vehicular entrances, natural features, historical importance, and spatial relationships.

The architectural style of the housing units vary greatly based on the year the neighborhood units were constructed (US Army 2006a). Density of the neighborhoods varies, as well as the arrangement of the units on the site. Due to the cold climate, many older neighborhoods have large parking areas immediately adjacent to the housing entry. The large parking areas are open and altered by impervious surface and parking activities. This has limited the amount of green space surrounding the older housing units.

The housing units do not present an organized space or unifying element, which can create an identity within a neighborhood group (US Army 2006a). The lack of landscape plantings adjacent to the building or street trees to define right-of-way limits creates a disorganized feeling within the neighborhoods. Defined social spaces are not provided within a neighborhood setting. Most of the roads are paved and form a grid.

The visual character within family housing presents a feeling of disorganization due to the lack of landscape elements or architectural features to provide a sense of place within a neighborhood unit (US Army 2006a). The architectural style of the housing units varies from one side of the street to another due to the timing of the construction of the particular units. The density of the units is high due to the lack of suitable land for construction. The undefined open space between the housing structures is accentuated due to the lack of trees or landscape elements to soften, frame, or screen views. Placement of trash receptacles within a housing area is random and uncontrolled. Playground equipment has been placed within housing areas at locations isolated from most housing units, and paved access routes have not been provided. Landscape treatment within the housing area is random and minimal. The flat open terrain and overhead utility lines adds to the spatial disorganization within the housing units and a lack of definition between neighborhoods.

The family housing area is an open flat plain, which has been created by the removal of native tree cover (US Army 2006a). The development of the housing units has taken place over a period of time where architectural style and construction methods and standards have changed with each development cycle. This has lead to a disorganized appearance within the housing community. The lack of site amenities, landscape treatment, or architectural features within the various housing groups has led to a lack of spatial organization and neighborhood identity.

Walkways are installed in the newer housing areas, but a complete pedestrian walkway system is lacking in the older areas (US Army 2006a). The lack of landscape elements and the presence of

overhead utility lines create a very stark visual impact to the area. This image is reinforced by the lack of site amenities, trash enclosures, and parking lots screens.

The most mature vegetation in the RCI footprint is visible in the largest of the undeveloped areas. This offers a pleasing visual diversion from the developed nature of the nearby housing areas. It also acts as an open space where wildlife can be seen, unlike the housing areas where little habitat is available for wildlife.

4.2.1.3 Regulatory Considerations

Various guidelines and requirements affect the aesthetics and visual resources of the installation, including the design, construction, and maintenance of structures and facilities. Development within the RCI footprint would be subject to these and other applicable design, construction, and maintenance guidelines and requirements for project structures, facilities, and landscaping. Installation guidelines and requirements affecting the project sites include the following:

- Fort Wainwright Army Installation Design Guide (US Army 2006a) and
- Landscape Design Plan (David Evans and Associates, Inc. 1987).

Exterior and interior design guidelines would affect the design, construction, and maintenance of housing units and ancillary supporting facilities on the RCI footprint parcels.

4.2.2 Consequences

An action is considered to have a significant adverse impact on aesthetics and visual resources if it were to:

- Include structures or land alterations visually incompatible or obtrusive to the visual setting and landscape;
- Noticeably increase visual contrast and reduce the scenic quality rating from any high-sensitivity foreground or middle ground viewpoint;
- Block or disrupt views or reduce public opportunities to view scenic resources; or
- Conflict with regulations and policies governing aesthetics and visual resources.

4.2.2.1 Proposed Action

The Army would lease to Army Alaska Family Housing approximately 626 acres at Fort Wainwright. Approximately 522 of those acres are used for family housing and family housing support. The Army also would grant a 50-year lease for undeveloped/vacant parcels of approximately 104 acres, collectively referred to as the RCI footprint.

Short-term minor adverse effects, long-term negligible adverse effects, and long-term beneficial effects are expected. The proposed action involves renovating, demolishing, and replacing aging units and ancillary supporting facilities. These project activities would be conducted as described in Section 2.2.1.3 and the CDMP Development Brief (Appendix A).

During renovation, demolition, and construction, there would be short-term adverse impacts on the visual character or quality of the RCI footprint and its surroundings. Impacts include a visible increase in traffic from project vehicles and an increase in activity and equipment from renovation, demolition, and construction workers. Because of the centralized location of proposed

activities in the Main Post, impacts are limited to the installation. Short-term adverse impacts on the visual character or quality of the RCI parcels are limited to the duration of renovation, demolition, and construction and to those affected portions of the installations.

Housing units and the new community center would be designed in accordance with applicable design, construction, and maintenance guidelines and requirements, such as those identified under Section 4.2.1.3, Regulatory Considerations. The assumption is that the new units and community center would be designed to complement existing units and structures. Also, planning would support the following environmental principles, which would benefit the visual character or quality of the RCI parcels:

- Housing areas would be designed to respect the natural systems of topography, vegetation, and drainage;
- Developed areas would be designed to minimize grounds work, aboveground utilities, and drainage;
- Existing landscape would be preserved in all possible situations;
- The landscape would be populated with native plants;
- Community design would reduce dependency on the car;
- The sense of community would be heightened with improved and linked open spaces, strategic tree locations, trail systems, activity areas, and street layouts that enhance the quality of outdoor life; and
- Existing landscapes would be accessed by and integrated with new landscapes.

Consequently, once renovation, demolition, and construction were finished, there would be long-term beneficial impacts on the visual character and quality of the RCI footprint and surrounding areas because the proposed action would improve or replace aging units and would improve the look and feel of an area by balancing the aesthetic between the built and natural environment. The proposed units would be constructed with attached garages instead of having large, open parking areas, resulting in greater open, natural space for those units. Buildings with historic architecture are addressed in Section 4.8, Cultural Resources.

After renovation, demolition, and construction, the new and renovated units and ancillary supporting facilities would have negligible adverse impacts on scenic vistas. The housing inventory would decrease, but the housing area acreage would remain unchanged, possibly creating a sense of sprawl that could detract from or obstruct distant views off-post of the surrounding natural features. The assumption is that the new units and ancillary supporting facilities would not substantially exceed the scale of existing structures. As a result, there would be negligible impacts on scenic vistas that are available from the installation.

After renovation, demolition, and construction, the new and renovated units and ancillary supporting facilities would have negligible adverse impacts on light and glare. The housing inventory would decrease, and the size of the housing areas would remain unchanged. The assumption is that the lighting for the new units and facilities would use proper outdoor lighting design features, such as shrouding outdoor lights to keep light from illuminating unnecessary areas and equipping outdoor lights with motion detectors, where practical, to provide light only when necessary. Another assumption is that the combined lighting for the new units and facilities would not exceed the brightness of the existing combined lighting.

4.2.2.2 No Action Alternative

Under the no action alternative, no structures would be updated or replaced in the short term. Ongoing adverse impacts on the visual setting include the presence of aging structures. Standard housing maintenance would still occur and would have minimal, if any, beneficial visual impacts. Maintenance would be performed on a constrained budget and stretched over a longer period, increasing the likelihood that housing units and ancillary supporting facilities would continue to age and deteriorate.

4.3 AIR QUALITY

4.3.1 Affected Environment

The ROI for air quality varies according to the type of air pollutant being discussed. Primary pollutants, such as carbon monoxide and directly emitted particulate matter, have a localized region of effects, generally restricted to the immediate vicinity of the source of emissions. Secondary pollutants, such as ozone, have a broader region of effects. Primary pollutants, such as carbon monoxide and directly emitted particulate matter, are the air pollutants of greatest concern in most of Alaska, including the Fairbanks urbanized area. During winter, ice fog is an additional concern as a visibility hazard.

Air pollutants that are covered by adopted federal ambient air quality standards are called criteria air pollutants (see Section 4.3.1.1). In addition to the six criteria air pollutants covered by federal ambient air quality standards, a large number of compounds have been designated as hazardous air pollutants, which are regulated primarily by emission limits on specific types of industrial emission sources. Greenhouse gases (GHG) are another air pollutant category of general concern. GHG are compounds in the atmosphere that absorb infrared radiation and re-radiate a portion of it back to earth, thus trapping heat and warming the atmosphere. The most important GHG compounds are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). The overall global warming potential of GHG emissions is typically presented in terms of carbon dioxide equivalents (CO_2e), using equivalency factors developed by the IPCC.

4.3.1.1 Local and Regional Air Quality Conditions

National and State Ambient Air Quality Standards. The federal Clean Air Act (CAA), as amended, authorizes the US Environmental Protection Agency (EPA) to establish national ambient air quality standards to protect public health and welfare. Federal ambient air quality standards have been adopted for six criteria pollutants—ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter (including inhalable particulate matter [PM_{10}] and fine particulate matter [$PM_{2.5}$]), and airborne lead. States may choose to adopt their own air quality standards, but state standards must be at least as stringent as federal standards; Alaska has adopted the federal ambient air quality criteria pollutant standards.

Local Air Quality Conditions. EPA evaluates whether the criteria air pollutant levels within a geographic area meet national ambient air quality standards. Areas that violate air quality standards are designated as nonattainment areas for the relevant pollutants. Nonattainment areas are sometimes further classified by degree (marginal, moderate, serious, severe, and extreme). Areas that comply with air quality standards are designated as attainment areas for the relevant pollutants. Areas that have been redesignated from nonattainment to attainment are maintenance areas. Areas of uncertain status are generally designated as unclassifiable.

For many years, the Fairbanks urbanized area, including most of the developed portions of the Fort Wainwright Main Post, was designated as a carbon monoxide nonattainment area. Maximum carbon monoxide levels and the number of violations of the federal carbon monoxide standards have been declining since the 1990s. There have been no violations of the federal carbon monoxide standard in the Fairbanks urbanized area in recent years. This area was reclassified as an attainment area for the federal carbon monoxide standard in 2004, thus making it a carbon monoxide maintenance area (EPA 2007).

The EPA revised the federal 24-hour $PM_{2.5}$ standard in 2007 to make it more stringent. Available monitoring data from downtown Fairbanks indicates that the area will be designated as nonattainment for the federal $PM_{2.5}$ standard within the next few years (ADEC 2008b). The Fairbanks area is in attainment with all other criteria pollutant standards.

Clean Air Act Conformity Guidelines. Section 176(c) of the federal CAA contains requirements that apply specifically to federal agency actions, including actions receiving federal funding. This section of the CAA requires federal agencies to ensure that their actions are consistent with the CAA and with applicable state air quality management plans. Federal agencies are required to evaluate their proposed actions to make sure that they will not cause or contribute to new violations of any federal ambient air quality standards, that they will not increase the frequency or severity of any existing violations of federal ambient air quality standards, and that they will not delay the timely attainment of federal ambient air quality standards.

The EPA has promulgated separate rules that establish conformity analysis procedures for transportation-related actions and for other (general) federal agency actions. The EPA general conformity rule requires a formal conformity determination document for federally sponsored or funded actions in nonattainment or maintenance areas when the net increase in direct and indirect emissions of nonattainment or maintenance pollutants exceeds specified de minimis thresholds. The CAA conformity de minimis threshold does not include emissions from stationary sources that operate under federally enforceable permits. The conformity de minimis threshold for carbon monoxide nonattainment and maintenance areas is 100 tons per year. Federal agency actions in the developed portion of the Main Post at Fort Wainwright are subject to CAA conformity review requirements. When the Fairbanks area is designated as nonattainment for the federal $PM_{2.5}$ standard, the applicable CAA conformity de minimis threshold will be 100 tons per year.

4.3.1.2 Fort Wainwright Air Emissions

Fort Wainwright is considered a major source facility and operates under a Title V operating permit (Permit No. AQ0236TVP01) (ADEC 2007b). Stationary emission sources listed under the permit include coal-fired boilers, a coal preparation plant, backup diesel-fired boilers, diesel generators, fuel storage tanks, the Fort Wainwright landfill, and painting and degreasing operations. Other sources of emissions at Fort Wainwright include aircraft flight operations, military vehicle operations, and ongoing temporary construction projects. Table 4-1 presents Fort Wainwright's annual emissions inventory for 2006.

Table 4-1
Fort Wainwright Annual Emissions Inventory
Calendar Year 2006

Pollutant	Emissions (tons/year)
Sulfur dioxide	683.55
Nitrogen oxides	481.01
Carbon monoxide	256.40
Particulate matter	73.56
Volatile organic compounds	33.16
Hazardous air pollutants	158.36

Source: Dick 2007

The coal-fired power plant and aircraft maintenance facilities are the emission sources of greatest concern at Fort Wainwright. The coal-fired power plant at Fort Wainwright has been cited in the past for violations of air quality permit requirements (US Army 2004), but new emission controls were installed in 2004 to bring the facility into compliance with federal and state air permit requirements. Fort Wainwright also is considered a major source of hazardous air pollutants. The Fort Wainwright power plant and its associated cooling water pond had been a contributor to winter ice fog; however, the cooling pond was replaced with an air-cooled condenser system that has reduced the frequency of winter ice fog.

In August 2008, Fort Wainwright completed a utilities privatization action that transferred ownership and operational responsibilities for the Central Heating and Power Plant (CHPP), heat and electrical distribution systems, potable water distribution systems, and wastewater collection systems to Doyon Utilities. As a result of utility privatization, Doyon assumed responsibility for regulatory compliance of the transferred utility systems, including maintaining air permits and ensuring compliance with state and federal air quality regulations.

4.3.2 Consequences

4.3.2.1 Proposed Action

The major air quality effects from the proposed action involve temporary emissions from demolition and construction from 2009 through 2013. During that period, 685 family housing units would be demolished, 321 units would be renovated, and 524 family housing units would be constructed. In addition, a welcome center/community center facility would be constructed. The proposed action is not expected to require any significant new stationary emission sources or to require changes in air permits for existing stationary emission sources. The proposed action would have short-term minor adverse impacts and no long-term effects on air quality.

Air pollutant emissions from demolition and construction have been evaluated using a spreadsheet model that calculates both criteria pollutant and GHG emissions from demolition and construction. The spreadsheet model evaluates fugitive dust from site disturbance, equipment engine emissions, evaporative emissions from curing asphalt pavement, and evaporative emissions from paints and other surface coatings. The spreadsheet model accounts for changes in emissions from construction equipment due to federal emission standards for off-highway equipment and changes in diesel fuel sulfur limits. The spreadsheet model was used to evaluate annual demolition and construction emissions for each year from 2009 through 2013. Demolition was evaluated in terms of four phases: building cleanout, building knockdown, pad and debris removal, and site regrading. Construction was also evaluated in terms of four activity phases: site preparation, utilities and building pad installation, building shell construction, and interior finishing. Emissions associated with building renovation were scaled from the emission estimates for the interior finishing phase of construction. Table 4-2 is a summary of criteria pollutant emissions expected from demolition, construction, and renovation.

The emission estimates presented in Table 4-2 indicate that the maximum annual carbon monoxide emissions from demolition and construction would be about 7.78 tons per year, well below the CAA conformity de minimis threshold of 100 tons per year. In addition, maximum $PM_{2.5}$ emissions would be less than the CAA conformity de minimis threshold that would become effective once the Fairbanks area is formally designated as nonattainment for the $PM_{2.5}$ standard. The CAA conformity threshold for $PM_{2.5}$ would apply to the proposed action only if the $PM_{2.5}$ nonattainment designation becomes effective before the NEPA process for the project is

Table 4-2
Summary of Criteria Pollutant Emissions from Demolition, Construction, and Renovation

Year and Project Component	Annual Emissions, Tons Per Year					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
2009 Activity						
Demolition	0.25	2.48	1.74	0.41	0.88	0.25
2009 Totals	**0.25**	**2.48**	**1.74**	**0.41**	**0.88**	**0.25**
2010 Activity						
Demolition	0.23	2.24	1.72	0.39	0.86	0.46
Construction	2.97	5.79	5.31	0.96	5.16	2.37
Renovation	0.83	0.78	0.75	0.14	0.79	0.36
2010 Totals	**4.02**	**8.81**	**7.78**	**1.50**	**6.81**	**3.19**
2011 Activity						
Demolition	0.16	1.53	1.29	0.28	0.62	0.33
Construction	2.38	4.39	4.34	0.74	4.16	1.89
Renovation	0.70	0.62	0.65	0.11	0.66	0.30
2011 Totals	**3.25**	**6.54**	**6.28**	**1.13**	**5.44**	**2.52**
2012 Activity						
Demolition	0.15	1.40	1.34	0.28	0.63	0.32
Construction	1.75	3.02	3.24	0.52	3.05	1.37
Renovation	0.52	0.42	0.48	0.08	0.49	0.22
2012 Totals	**2.42**	**4.85**	**5.06**	**0.87**	**4.17**	**1.91**
2013 Activity						
Construction	1.89	3.22	3.90	0.57	3.37	1.50
Renovation	0.54	0.44	0.49	0.08	0.50	0.23
2013 Totals	**2.42**	**3.65**	**4.40**	**0.66**	**3.87**	**1.72**
Maximum Annual Emissions	**4.02**	**8.81**	**7.78**	**1.50**	**6.81**	**3.19**
CAA Conformity Threshold	**NA**	**NA**	**100**	**NA**	**NA**	**100**

NA = not applicable

ROG = reactive organic compounds (ozone precursor)

NOx = oxides of nitrogen (ozone precursor)

CO = carbon monoxide

SOx = sulfur oxides

PM_{10} = inhalable particulate matter

$PM_{2.5}$ = fine particulate matter

Assumed housing demolition schedule: 194 units in 2009, 194 units in 2010, 144 units in 2011, 153 units in 2012.

Assumed housing construction schedule: 179 units in 2010, 140 units in 2011, 104 units in 2012, 108 units in 2013.

Assumed building renovation schedule: 105 units in 2010, 86 units in 2011, 64 units in 2012, 66 units in 2013.

A 10,000-square-foot welcome center/community center is assumed to be built in 2013.

complete. Consequently, criteria pollutant emissions associated with the proposed action are considered minor, and no formal CAA conformity determination is required. A Draft Record of Nonapplicability (RONA) is provided as Appendix D.

In addition to the criteria pollutant emissions summarized in Table 4-2, demolition, construction, and renovation would generate GHG emissions from equipment engine exhaust. Table 4-3 is a summary of annual GHG emissions expected from demolition, construction, and renovation.

Table 4-3
Summary of GHG Emissions from Demolition, Construction, and Renovation

Year and Project Component	Annual Emissions, Tons Per Year			
	CO_2	CH_4	N_2O	CO_2e
2009 Activity				
Demolition	277.12	0.012	0.009	279.96
2009 Totals	**277.12**	**0.012**	**0.009**	**279.96**
2010 Activity				
Demolition	277.12	0.012	0.009	279.96
Construction	690.75	0.025	0.018	696.71
Renovation	105.82	0.004	0.003	106.77
2010 Totals	**1,073.68**	**0.041**	**0.029**	**1,083.43**
2011 Activity				
Demolition	212.22	0.009	0.007	214.39
Construction	570.71	0.021	0.015	575.64
Renovation	92.34	0.003	0.002	93.17
2011 Totals	**875.28**	**0.033**	**0.024**	**883.20**
2012 Activity				
Demolition	223.15	0.010	0.007	225.43
Construction	431.77	0.016	0.011	435.49
Renovation	69.28	0.003	0.002	70.01
2012 Totals	**724.29**	**0.028**	**0.020**	**730.92**
2013 Activity				
Construction	523.07	0.019	0.013	527.54
Renovation	71.55	0.003	0.002	72.19
2013 Totals	**594.62**	**0.022**	**0.015**	**599.74**

GWP = global warming potential in carbon dioxide equivalents (CO_2e)

CO_2 = carbon dioxide (GWP = 1)

CH_4 = methane (GWP = 25)

N_2O = nitrous oxide (GWP = 298)

CO_2e = carbon dioxide equivalents

No federal or state agencies have yet established impact significance thresholds for GHG emissions. As can be seen by comparing Table 4-2 and Table 4-3, GHG emission quantities associated with proposed demolition and construction are much larger than the quantities of criteria pollutant emissions. The relative significance of GHG emission estimates in Table 4-3 can be interpreted in the context of available data on Alaska statewide GHG emissions. The Alaska Department of Environmental Conservation estimates that statewide GHG emissions were 57.4 million tons per year of CO_2e in 2005 and will reach 60.8 million tons per year of CO_2e by 2010 (ADEC 2008a). Thus, the maximum annual GHG emissions expected from the proposed action of 1,083 tons per year CO2e would be only 0.0018 percent of statewide 2010 GHG emissions. In addition, GHG emissions from demolition, construction, and renovation would be temporary ongoing emissions. The expected short-term GHG emissions that would be produced by the proposed action are too small an increment of statewide GHG emissions to be considered significant.

The proposed action would not increase the on-base population at Fort Wainwright; consequently, no long-term changes in emissions from housing occupancy or vehicle travel are expected as a result of the proposed action. In addition, new and renovated housing units are expected to provide greater energy efficiency than existing units. The greater energy efficiency of new and renovated housing units, combined with utility system efficiency improvements being made by Doyon, should reduce annual emissions from energy use at occupied housing units. The proposed action is not expected to require any significant new stationary emission sources or to require changes in air permits for existing stationary emission sources.

4.3.2.2 No Action Alternative

No impacts are expected because no changes to existing conditions are anticipated.

4.4 NOISE

4.4.1 Affected Environment

Sound is caused by vibrations that generate waves of minute air pressure fluctuations in the air. Air pressure fluctuations that occur from 20 to 20,000 times per second can be detected as audible sounds of different frequencies. In general, sound waves travel away from the noise source as an expanding spherical surface. The energy contained in a sound wave is consequently spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the noise source. Sound level meters typically report measurements as a composite decibel (dB) value. Decibel scales are a logarithmic index based on ratios between a measured value and a reference value.

Human hearing varies in sensitivity for different sound frequencies in the audible range. Because human hearing is not equally sensitive to all sound frequencies, various frequency weighting schemes have been developed to approximate the way people hear sound. The A-weighted decibel scale (dBA) is normally used to approximate human hearing response to sound. Varying noise levels are often described in terms of the equivalent constant decibel level. Equivalent noise levels (Leq) are used to develop single-value descriptions of average noise exposure over various periods of time. Average noise exposure over a 24-hour period is often presented as a day-night average sound level (DNL). DNL values are calculated from hourly Leq values, with the Leq values for the nighttime period (10 PM to 7 AM) increased by 10 dB to reflect the greater disturbance potential from nighttime noises.

Because noise levels decrease as the distance from the source increases, the region of influence for noise issues is generally more limited than for other resources. Localized noise sources, such as construction activity, typically have a region of influence extending no more than half a mile from the noise source. Loud noise sources may have a region of influence extending up to a mile from the noise source. High intensity blast noise sources can have a region of influence extending a few miles from the noise source, with terrain and weather conditions exerting a significant influence on the size of the region of influence.

4.4.1.1 Department of Defense Noise Guidelines

The Department of Defense uses guidelines developed by the Federal Interagency Committee on Urban Noise (FICUN) to evaluate whether existing and proposed land uses are compatible with prevailing noise levels. The FICUN guidelines (FICUN 1980) address land use incompatibility and recommended building design considerations according to three noise level categories:

Zone I = DNL levels below 65 dB

Zone II = DNL levels of 65-75 dB

Zone III = DNL levels above 75 dB

All land uses are considered generally compatible with Zone I noise levels. Educational and residential land uses generally are not compatible with Zone II noise levels unless special acoustic treatments and designs are used to ensure acceptable interior noise levels. Residential and educational land uses are not compatible with Zone III noise levels. Industrial and manufacturing land uses may be acceptable in Zone III areas if special building designs and other measures are implemented.

4.4.1.2 Existing Noise Conditions

Existing noise sources at the Main Post of Fort Wainwright include industrial facilities and operations (for example, power plants, aircraft maintenance facilities, and military vehicle maintenance facilities), aircraft flight operations, military vehicle operations, rail traffic through the Main Post (about 50 train movements per week), and ongoing temporary construction projects. Aircraft flight operations are the most important noise source associated with the Main Post. Training areas beyond the Main Post are a source of noise associated with training activities and munitions use. The Public Affairs Office at Fort Wainwright maintains a noise complaint system for tracking and resolving noise complaints. In general, Fort Wainwright receives fewer than 20 noise complaints per year.

Fort Wainwright has prepared an installation environmental noise management plan (IENMP) to evaluate and address noise- and safety-related issues (US Army Corps of Engineers 2001). In general, there are few incompatibility issues affecting existing land uses on-post and in adjacent off-post areas. The IENMP uses a 500-meter (1,640-foot) buffer zone around the Zone II contours to identify potential noise issues for noise-sensitive land uses. Five on-post areas are identified as having the potential for some noise-related land use incompatibility issues. Table 4-4 is a summary of the existing potential noise issues for areas that are near the RCI footprint.

Table 4-4
Potential On-Post Noise-Sensitive Land Uses

Location	Land Use	Potential Noise Issue
North Post (includes Chena Bend and North Town)	Unaccompanied Housing	Potential noise from aircraft operations and small arms training. Buildings are within 500 meters of the Zone II contour.
Main Gate (includes Bear Paw, Gertsch Heights, Northern Lights, Southern Cross, Taku Gardens, Taku Gardens Extensions, and Denali Village)	Community Hospital, Hospital Barracks, Tanana Satellite School	Potential noise from aircraft operations. Buildings are near but are entirely outside of the 500-meter buffer zone.
Birch Hill (includes Siku Basin)	Urban Area	Potential noise from small arms firing training. A very small portion of the area lies within Zone II and Zone I. A significant area lies within the 500-meter buffer zone.

Source: US Army Corps of Engineers 2001

The IENMP identifies seven general areas around the boundary of Fort Wainwright that represent minor noise-related land use incompatibility issues in terms of existing or potential future land uses. Some off-post residential and commercial areas along Richardson Highway are within the Zone II contour for artillery training or are within 500 meters of the Zone II contour. Some off-post residential and open space lands along Badger Road east of Fort Wainwright are within 500 meters of Zone II contours for the airfield and for artillery training areas. Off-post residential and open space lands in the vicinity of Approach Hill east of Fort Wainwright are within 500 meters of the Zone II contour for the airfield. Off-post residential and open space lands in the vicinity of Birch Hill are within 500 meters of the Zone II contour for small arms training. A small portion

of Hamilton Acres on the west side of Fort Wainwright is within the Zone II contour for small arms training. A small portion of the area along Lakeview Drive south of Old Richardson Highway is within 500 meters of the Zone II contour for artillery training.

4.4.2 Consequences

4.4.2.1 Proposed Action

Under the RCI project, the primary source of noise would be from demolition, renovation, and construction. Table 4-5 lists typical construction equipment sound levels. The demolition phase of the proposed action could result in noise levels of up to 80 dB in the immediate vicinity; noise levels would decrease with increasing distance from the demolition sites. Because most of the RCI footprint is more than a mile from the installation boundaries, construction and demolition activities would have little or no noise impact on sensitive land uses (including residential and educational) in Fairbanks.

Table 4-5
Construction Equipment Noise Levels

Equipment Type	Noise Level At 50 Feet (dB)	
	Without Feasible Noise Control	With Feasible Noise Control
Earthmoving		
Front loaders	79	75
Backhoes	85	75
Dozers	80	75
Tractors	80	75
Scrapers	88	80
Graders	85	75
Truck	91	75
Pavers	89	80
Material Handling		
Concrete mixers	85	75
Concrete pumps	82	75
Cranes	83	75
Stationary		
Pumps	76	75
Generators	78	75
Compressors	81	75
Impact		
Pile drivers	101	95
Jack hammers	88	75
Pneumatic tools	86	80
Other		
Saws	78	75
Vibrators	76	75

Estimated levels obtainable by selecting procedures or machines and implementing noise control features requiring no major redesign or extreme cost.

Source: EPA 1971

The proposed action would be implemented in phases during which some families would be moved off-post or into a new housing area during the buildout period, thus moving sensitive individuals away from noise-generating project activities. Additionally, the Army Alaska Family Housing would limit development activities to normal business hours, so noise generated by those activities would be temporary and minor.

Over the long term, no adverse noise impacts are expected. The proposed action is within the existing residential areas on Fort Wainwright and would be compatible with the existing land use.

4.4.2.2 No Action Alternative

No impacts are expected because no changes to existing conditions are anticipated.

4.5 GEOLOGY AND SOILS

4.5.1 Affected Environment

This section is a description of the geologic setting and soils at Fort Wainwright. The ROI consists of Fort Wainwright and the Fairbanks area. The description includes the underlying geologic formations, topography, regional faults seismic hazards, and soils and sediments.

4.5.1.1 Geology and Physiography

The terrain at Fort Wainwright is relatively flat, with typical elevation about 450 feet above mean sea level. The region has a continental climate with cold long winters and warm short summers. The climate is characterized by temperatures ranging from 65°F below zero in the winter to 90°F in the summer (Global Security 2008).

The Yukon-Tanana terrain underlies much of Interior Alaska and encompasses three major physiographic provinces: Yukon-Tanana Upland, Tanana-Kuskokwim Lowland, and the Northern Foothills (Ballistic Missile Defense Organization 2000). Fort Wainwright lies within the Tanana-Kuskokwim Lowland, which ranges in width from 30 to 60 miles. Geologic materials in the Tanana Lowlands are river deposits consisting of sand and gravel with a mantle of finer material. Northernmost portions of the post are in the foothills of the Yukon-Tanana Upland and consist of bedrock covered by water-saturated organic material/matter and loess. Water-saturated organic material/matter inhibits drainage, largely due to the presence of impermeable permafrost below the surface, and has very low bearing strength when thawed. Swale deposits, made up of poorly stratified silt, sand, and organic matter, are scattered along the Richardson Highway and in parts of South Post (US Army Garrison, Alaska 2006).

Permafrost on Fort Wainwright was originally discontinuous and present in lenses under the main cantonment area. Most of the permafrost was disturbed by the construction of Ladd Army Airfield. Where present, permafrost forms discontinuous confining layers that influence groundwater movement and distribution. The depth to permafrost, when present, ranges from 2 to 40 feet below ground surface. The greater depths are found on cleared and developed land surfaces, where thermal degradation of underlying permafrost occurs (EPA 2006). Discontinuous permafrost lies just under the surface in some areas (US Army Garrison, Alaska 2006).

4.5.1.2 Fault-Rupture Zones and Liquefaction

The Fairbanks area is seismically active due to the presence of the Denali Fault, an active strike-slip fault that arcs through Alaska. The seismic behavior of the Denali Fault is characterized by infrequent but large earthquakes (USGS 2007a).

Fort Wainwright is in the Salcha seismic zone, a distinct northeast-trending band. Major earthquakes that occur throughout interior Alaska are a result of collisions of pieces of crust with the southern margin. Although there are no faults that run directly beneath Fort Wainwright, the area has experienced three magnitude 7 earthquakes within 50 miles of Fairbanks over the last 50 years (USGS 2003).

Building codes prescribe how much horizontal force buildings should be able to withstand during an earthquake. Peak ground acceleration (PGA) is an estimate of the maximum horizontal acceleration experienced by a solid mass at the soil surface in an earthquake (Table 4-6). The Global Seismic Hazard Assessment Program gives PGAs in bedrock a 10 percent chance of exceedance in 50 years (Macquarie University 2007).

Table 4-6
Ground Shaking Intensity (PGA)

Ground Shaking Intensity	PGA
Very High (5)	Larger than 4.0 m/s^2*
High (4)	Between 2.4-4.0 m/s^2
Medium (3)	Between 0.8-2.4 m/s^2
Low (2)	Between 0.2-0.8 m/s^2
Negligible (1)	Less than 0.2 m/s^2

*meters per square second
Source: Macquarie University 2007

The actual ground shaking intensity felt at ground level can be strongly modulated by the response of the soils and weathered material overlying basal rocks, as shown in Table 4-7.

Table 4-7
Ground Shaking Intensity (Soil Type)

Ground Shaking Intensity	Soil Type
Zone 5	Unconsolidated and swampy soils
Zone 4	Variable alluvial, estuarine, and wind-blown deposits, including sands, organic materials, and unconsolidated clays.
Zone 3	Thicker soils and sediments of older river terraces and valley fills, well-drained coastal and inland sand dunes.
Zone 2	Competent bedrocks, but subsoils may be plastic or have high shrink-swell potential, leading to cracking of structures.
Zone 1	Shallow soils on competent bedrock.

Source: Macquarie University 2007.

Fort Wainwright lies in seismic Zone 3, where the PGA, which has a 10 percent chance of being exceeded in 50 years, is 1.6 to 2.4 meters per square second (m/s^2) (USGS 2007b).

4.5.1.3 Soils

Fort Wainwright is underlain by soil and unconsolidated sediment that consists of silt, sand, and, gravel and that ranges in thickness from 10 feet to more than 400 feet before encountering bedrock. A five-foot-thick surficial layer of fine-grained soil overlies the deeper alluvial deposits. Alluvial floodplain deposits underlie the surface soils and consist of varying proportions of sand and gravel, which are commonly layered (EPA 2006).

Most of the Main Post area is Chena alluvium, an unconsolidated silt-gravel mixture. The unconsolidated silt-gravel mixture freezes perennially. It has a high bearing strength when frozen but is subject to sliding and is difficult to compact when thawed. Northernmost portions of the post are in the foothills of the Yukon-Tanana Upland and consist of bedrock covered by water-saturated organic material/matter and loess, which inhibits drainage. This is largely due to the presence of impermeable permafrost below the surface and has very low bearing strength when thawed. Swale deposits, made up of poorly stratified silt, sand, and organic matter, are scattered in parts of South Post (US Army Garrison, Alaska 2006).

Based on the soil map from the Natural Resources Conservation Survey (NRCS), most of the soils within the RCI footprint are salchaket-typic cryorthents complex, Tanana mucky silt loam, and urban land (NRCS 2007b). The NRCS rates the suitability and limitation for use of most of the soils within the RCI footprint as “very limited” (NRCS 2007c), indicating that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor soil performance and high maintenance can be expected.

4.5.1.4 Prime Farmland

Prime farmland has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. The land could be cropland, pastureland, rangeland, forest land, or other land but not urban built-up land or water. The soils are of the highest quality and can economically produce sustained high yields of crops, when treated and managed according to acceptable farming methods.

Congress established very specific technical criteria to identify prime farmland soils. In general, the criteria reflect adequate natural moisture content, specific soil temperature range, pH between 4.5 and 8.4 in the rooting zone, low susceptibility to flooding, low risk to wind and water erosion, minimum permeability rates, and low rock fragment content.

There are no prime farmlands in Alaska because the soil temperatures do not meet the threshold established by Congress (NRCS 2007a).

4.5.1.5 Mineral Resources

The US Bureau of Land Management classifies mineral resources on federal lands into three resources: locatable, leasable, and saleable.

Locatable minerals can be claimed by private citizens for development. Minerals falling under this category include most metals, metallic ores, and some nonmetallic minerals. Under federal regulations found in 43 CFR Part 3000, the BLM manages mineral resources on Alaska public lands withdrawn for military purposes. There are no valid or existing claims within the withdrawals (US Army Garrison, Alaska 2006).

Leasable minerals are leased temporarily to a developer and include oil, gas, coal, geothermal resources, shale, gilsonite, phosphate, and sodium. Since the 1950s, there have been no valid leases on the lands transferred to the Army (US Army Garrison, Alaska 2006).

Saleable minerals include construction materials, such as sand, gravel, riprap, cinders, pumice, clay, limestone, and dolomite. Saleable materials on the installation have been used locally by the Army and other authorized agencies but have not been extracted commercially since the land was first withdrawn in the 1950s (US Army Garrison, Alaska 2006).

4.5.2 Consequences

An action would have adverse effects if it were to affect the site's physiography, geology, or vulnerability to seismic hazards. Adverse impacts also would occur if people or structures were exposed to seismic hazards and if structures were in areas prone to erosion or underlain with expansive soils. Additionally, adverse impacts on soil and permafrost include compaction, rutting, reduced soil strength, disturbance to vegetation, and subsequent melting of permafrost.

4.5.2.1 Proposed Action

Geology and Physiography. Because the proposed action involves ground disturbance at depths that would not change the geological formations within the project footprint, no effects are expected.

Fault-Rupture Zones and Geologic Hazards. Minor adverse effects are expected. Fort Wainwright lies in the Salcha seismic zone, a distinct northeast-trending band. Fort Wainwright also is in seismic zone 3, where there is a 10 percent probability of major earthquake damage at least once in 50 years. Seismicity impacts could be adverse, but the proposed RCI development would be constructed to current building code standards, so the effects would be minor.

Soils. Minor adverse effects are expected. Ground disturbance due to demolition and construction could increase the potential for soil erosion. A stormwater pollution prevention plan (SWPPP) would be implemented. The SWPPP would identify appropriate best management practices (BMPs) to reduce nonpoint pollution, including discharge of sediment during construction. BMPs include directing stormwater runoff away from disturbed areas, capturing site runoff in sediment settling basins, seeding the surface with grasses to hold the soil, contouring to decrease runoff velocity, placing sediment barriers, such as hay bales or sediment fences, around areas subject to erosion, and other similar measures. The erosion impacts under the proposed action are expected to be minor.

The NRCS rates the suitability and limitations for use of most of the soils within the RCI footprint as "very limited," meaning that the soil has one or more features that may be unfavorable for certain uses (NRCS 2007c). Soil disturbance could have long-term and irreversible permafrost impacts. Army Alaska Family Housing would conduct soil surveys and subsurface investigations at the proposed sites to determine the presence of permafrost. If permafrost is present, these explorations would determine if it is thaw-stable or thaw-unstable, would identify the type of soil present, and would determine the best construction method to reduce the adverse permafrost effects. Those methods include deep surface excavation to remove thaw-unstable materials, passively refrigerated foundations, drilled and driven pile foundations, and thermal siphons to ensure that the permafrost remains frozen.

Conducting soil surveys and subsurface investigations and implementing the most appropriate methods for the soil characteristics and the potential presence of permafrost would ensure that soil effects are minor adverse.

Prime Farmlands. Because there are no prime farmlands within the RCI footprint, no impacts are expected.

Mineral Resources. There are no valid or existing mineral location claims or mineral leases on Fort Wainwright lands, so no impacts on mineral resources would result from the proposed action.

4.5.2.2 No Action Alternative

Under the no action alternative, Fort Wainwright would continue to provide for the family housing needs of its personnel through use of traditional military maintenance and construction procedures.

Geology and Physiography, Mineral Resources, and Soils. Under the no action alternative, the RCI footprint conditions would remain unchanged, and no effects are expected.

Fault-Rupture Zones and Geologic Hazards. Long-term minor adverse effects on seismicity and geologic hazards are expected. Existing facilities at the project site were designed to past, possibly less stringent, standards than are currently required, so seismic events could adversely impact the existing buildings and facilities.

Prime Farmlands. Because there are no prime farmlands within the RCI footprint, no impacts are expected.

Mineral Resources. There are no valid or existing mineral location claims or mineral leases on Fort Wainwright lands, so no impacts on mineral resources are expected.

4.6 WATER RESOURCES

4.6.1 Affected Environment

The ROI for water resources includes the RCI footprint plus adjacent lands where there are surface waters and where groundwater recharges and discharges. The ROI for this analysis includes the Tanana River basin.

4.6.1.1 Hydrogeology

Surface Water. The Chena River flows through Fort Wainwright and Fairbanks and eventually into the Tanana River south of the post. The Tanana River borders the south portion of Fort Wainwright. The Main Post area is between the Chena and Tanana Rivers, as shown on Figure 2-2. Natural drainage in the Main Post area causes water to flow into the Chena River on the south side of the river. Clear Creek, southeast of the RCI footprint, is the primary drainage of the eastern part of the Main Post. Other Fort Wainwright areas are less developed, are forested, and contain a few gravel roads that drain to the north side of the Chena River (EPA 1999).

The Chena River is a clear water (nonglacial) stream characterized in its lower reaches by slough-like conditions, relatively slow-moving water, and a single well-defined channel. The river forms part of the boundary of Fort Wainwright. Upstream of Fort Wainwright, the Chena River is fed by small streams from adjacent hills (EPA 1999).

River engineering projects have significantly affected the hydrology and ecology of the lower Chena River. Before 1941, the lower Chena River was a slough of the Tanana River called the Chena Slough. In 1941, a dike was constructed across the upstream end of the Chena Slough to prevent floodwaters of the Tanana River from causing flood damage to Fairbanks. The Chena River is now the main source of flow through Fort Wainwright and Fairbanks. The ecology of the lower Chena River has changed considerably since the exclusion of the glacial meltwater of the Tanana River with its high load of suspended sediments (EPA 1999).

The volume of flow in the Tanana River fluctuates dramatically by season. During the long period of freeze, usually from October to May, flow is limited to seepage of groundwater from aquifers into streams. During winter, many small streams freeze solid, with no discharge. Snowmelt typically begins in March or April and reaches its peak in June. Flow is greatest during June and July. By the end of July, most snow has melted, and a steady flow during August and September is sustained by rainfall. The Chena River is not fed by glaciers and reaches peak flow before the Tanana River (EPA 1999).

Groundwater. The main aquifer at Fort Wainwright is composed of Tanana basin alluvium. The aquifer ranges from a few feet thick at the base of Birch Hill to at least 300 feet thick under the Main Post, and may reach 700 feet thick in the Tanana River Valley. The aquifer is unconfined in permafrost-free areas. Groundwater storage in Tanana Basin is replenished through influent seepage of glacier-fed streams. The water table is generally within 10 to 15 feet below the ground surface and generally flows west-northwest on the south side of the Chena River. The flow on the north side of the Chena River is to the west-southwest and is highly influenced by permafrost. The Chena River flows through Fort Wainwright and Fairbanks into the Tanana River. The Tanana River flows south of the Main Post and into the Yukon River (EPA 1999).

Groundwater movement between the Tanana and Chena Rivers generally follows a northwest regional direction, similar to the flow direction of the rivers. Seasonal changes in groundwater flow directions of up to 180 degrees are not uncommon in the area due to the effects of changing river stages in the Tanana River and, to a lesser extent, the Chena River. Groundwater levels near the Chena River fluctuate greatly because of river stage and interactions with the Tanana River. Typically, groundwater levels rise during spring breakup and late summer runoff and drop during fall and winter when rainfall decreases and precipitation becomes snow (EPA 1999).

4.6.1.2 Water Quality

Groundwater is the only source of potable water used at Fort Wainwright and the Fairbanks area. Approximately 95 percent of Fort Wainwright's potable water is supplied through a single distribution system fed by two large-capacity wells near the Central Heating and Power Plant. These wells are completed at a depth of approximately 80 feet below ground surface and provide between 1.5 million and 2.5 million gallons of water per day to the post water treatment plant for processing and distribution. In addition to the main drinking water supply wells, there are five emergency standby supply wells located around the cantonment area. These wells have been drilled to between 80 and 120 feet below the surface and are capable of pumping approximately 250,000 gallons per day per well (EPA 1999).

With the exception of naturally occurring metals, groundwater quality is good in the Main Post area. Much of Fort Wainwright is underlain by an alluvial aquifer that is recharged by the Tanana River, while the Chena River and direct infiltration of precipitation contribute small amounts. Groundwater in the Fort Wainwright area tends to have relatively high, naturally occurring levels of metals, especially iron and arsenic. Elevated arsenic levels are prevalent in the upland areas and are not related to human-caused pollution (US Army Garrison, Alaska 2006). Groundwater tested for 10 consecutive years at the Fort Wainwright water treatment plant showed results below the EPA threshold for arsenic (Vincent 2008). The EPA has set the arsenic standard for drinking water at 0.01 parts per million (EPA 2008).

The Chena River has been on the Clean Water Act, Section 303(d) list of impaired water bodies since the 1990s due to the presence of petroleum products. Untreated groundwater next to the river is contaminated with benzene at concentrations below Safe Drinking Water Act levels. On March 26, 1999, the EPA signed a Record of Decision, which included a Chena River Aquatic Assessment Program designed to determine whether actual impacts on the Chena River existed, to assess their significance, and to measure changes over time. Since then, using new information, staff of the Alaska Department of Environmental Conservation (ADEC) determined that there are measurable impacts but that those impacts do not show substantial ecological risk. The DEC staff is reviewing water quality data collected in 2005 and 2007 to decide if determining total maximum daily loads is necessary (ADEC 2008c).

4.6.1.3 Floodplains

Executive Order 11988, Floodplain Management, was established in 1977 "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." All federal and federally supported activities are required to comply with Executive Order 11988.

Soils in the Fort Wainwright river floodplains consist of alternate layers of sand, silt loam, and gravelly sand (US Army Garrison, Alaska 2006).

Drainage channels at Fort Wainwright were created as part of the Chena River Flood Control Project to control flooding along the Chena River. The Chena River Flood Control Project was begun after the 1967 flood, when unusually heavy rains swelled the Chena River and its tributaries six feet above their flood stage. The project protects Fairbanks and adjacent areas, including Fort Wainwright, from recurring flood damage from the Chena and Tanana Rivers. The project is made up of a dam and a levee system 20 miles east of Fairbanks, which includes concrete outlet works and flood gates. During normal fluctuations of the Chena River, the outlet works remain open, allowing the natural flow of water. At periods of high water, the flood gates are lowered, directing excess water to the Tanana River (Corps of Engineers 2008). Flood Channel B located to the east of the RCI footprint was created as part of the flood control effort, connecting the floodplains of the Chena and Tanana Rivers. Clear Creek flows to the west within developed portions of the Main Post through a channelized ditch and ultimately empties into the Chena River.

4.6.2 Consequences

4.6.2.1 Proposed Action

Implementing the proposed action could result in adverse effects on water quality if proposed development were to result in a violation of water quality standards or an alteration to high water flows in an area, potentially causing flooding.

Surface Water. During demolition and construction, ground disturbance may increase the potential for soil erosion and for sediments to be washed overland into the Chena River, which could carry them into the Tanana River. In addition, the temporary storage of construction-related chemicals and use of construction equipment could result in an accidental release of those chemicals, such as oil, grease, and fuel, which could degrade water quality. As noted in Section 2.2.1.1, Army Alaska Family Housing would comply with all regulatory requirements, including preparing and implementing an SWPPP that would include BMPs developed to minimize potential impacts from increased runoff. Implementing BMPs would ensure minor erosion impacts and impacts on receiving waters in the Fort Wainwright area.

In the long term, the increase in pavement and structures may slightly reduce the amount of permeable ground area, thereby increasing the volume of stormwater runoff. However, as discussed in Section 2.2.1.1, lease of the RCI property would be subject to several conditions imposed by the Army, including maintaining soil and water conservation structures and implementing appropriate measures to prevent or control soil erosion. Further, the proposed action would not add to the contamination of the Chena River. As discussed in Section 2.2.1.1, Army Alaska Family Housing would ensure that no wastewater or effluent is discharged from the site so that the discharge would contaminate soils, streams, or other bodies of water. Residents would be issued a resident guide prohibiting vehicle repairs and other activities that may result in the release of contaminants.

Groundwater. There would be no effects on groundwater supplies or interference with groundwater recharge from the proposed action, nor would it interfere with seepage flow to nearby streams, so it would not result in an impact.

Water Quality. The surface to groundwater depth at Fort Wainwright is typically reported to be between 10 and 15 feet below the ground surface, so there is a potential for construction-related chemicals to be accidentally released and to infiltrate the groundwater. However, Army Alaska Family Housing would implement a water management system to handle both the quantity and

quality of stormwater runoff, which would reduce the presence of contaminated surface water that could infiltrate groundwater. Therefore, the effects of the proposed action on groundwater quality are minor adverse.

Floodplains. The entire RCI footprint is within the 100-year floodplain of the Chena and Tanana Rivers, but there are no practicable alternatives to locating the proposed action in a floodplain. In addition, the proposed project site is protected by levees, swales, and melt channels and is part of the Chena River Flood Control Project. The flood control project eliminates or minimizes potential risks of flood loss and lessens the impact of floods on human safety, health, and welfare. As a result, floodplain impacts would be minor adverse. This complies with Executive Order 11988, 23 CFR Part 650.105(k), Army regulations, and the guidance contained in the Federal Register, Volume 42, Page 26951 (42 FR 26951). A draft finding of no practicable alternative is included in Appendix E.

4.6.2.2 No Action Alternative

No effects on water resources are expected because no changes to land use would occur under the no action alternative.

4.7 BIOLOGICAL RESOURCES

4.7.1 Affected Environment

This section is a description of the biological resources at Fort Wainwright. The discussion of biological resources includes vegetation, wildlife, sensitive habitats, and special status species that are found or are potentially found on or in the general vicinity of the RCI footprint. Each of these resources is discussed in this section.

The region of influence (ROI) for biological resources includes the RCI footprint on the Fort Wainwright Main Post and a surrounding 30-meter (98-foot) buffer area of contiguous habitats that could be affected by the proposed activities. This buffer is included to account for mobile wildlife and bird species and also for indirect impacts on vegetation and habitat.

Data on biological resources were collected from previous surveys, reports, and studies, including the *US Army Garrison, Alaska, Draft Integrated Natural Resources Management Plan 2007-2011* (INRMP) (US Army Garrison, Alaska 2006), *Environmental Assessment, Final Integrated Natural Resources Management Plan for US Army Garrison Alaska* (US Army Garrison, Alaska 2007a), *Transformation EIS* (*US Army 2004*), *the Railhead Truck EA Draft FONSI* (US Army Garrison, Alaska 2007b), the *Construct and Revitalize Family Housing EA* (US Army Garrison, Alaska 2004), the *Draft Real Property Master Plan* (US Army Garrison, Alaska 2005), and the Alaska Department of Fish and Game's *Alaska Wildlife Notebook Series* (ADFG 2006). Correspondence from the US Fish and Wildlife Service (USFWS) (USFWS 2007) supplied current information on sensitive species and habitat on and near the property (see Appendix B).

4.7.1.1 Local Management Plans

As part of Army stewardship of natural resources on Fort Wainwright, numerous documents have been drafted to address resource and facility management. The Fort Wainwright Draft INRMP (US Army Garrison, Alaska 2006), is a comprehensive document discussing and integrating training, natural resources, and polices for protection and conservation at Fort Wainwright (US Army Garrison, Alaska 2006; US Army 2004). Natural resources at Fort Wainwright are being managed in accordance with the Draft INRMP, as well as the Final INRMP EA (US Army Garrison, Alaska 2007a). The EA/FNSI for implementation of that plan was completed in February 2007. Individual resource plans are summarized in the INRMP and are discussed briefly below. A forestry management plan was drafted as a requirement of the management plan and was completed with plans designed to maintain the habitats and ecological integrity of these areas while allowing military training, ensuring that the training does not degrade plant or wildlife resources or habitat. An Alaska wildland fire management plan has been developed and covers fire prevention and suppression, as well as a prescribed burning plan (although the likelihood of fire in the project area is low). Of these plans, the most relevant to the project action is wetlands management. Other plans that have been drafted include a habitat management action plan addressing habitat for biological resources and how to preserve and maintain them; a special interest area management plan, which identifies and delineates special interest areas and proposes conservation measures; a pest management plan, which is a discussion of specific practices to control pests; and a landscape design plan, which was designed to improve the aesthetic nature of the post.

4.7.1.2 Ecosystem

Fort Wainwright is in the Tanana Valley Basin of interior Alaska, within the Fairbanks D-2 SE US Geological Survey topographical quadrangle. The biological resources found throughout Fort Wainwright include a variety of vegetation and wildlife, but the abundance and distribution of biological resources in the ROI itself is limited. Overall, the ROI is highly disturbed and supports a low diversity of wildlife and plant species. The ROI is distributed across three main locations at the Main Post. The portions of the ROI that contain the highest value habitat are the wetlands areas, primarily in Undeveloped Area A, shown in Figure 4-2.

Habitats found throughout Fort Wainwright include four main vegetation types: open, low-growing spruce forests; moist tundra; treeless bogs; and closed spruce hardwood forests. The installation has a wide variety of plant and animal species within its ecosystem, but there are no federally listed species found in the ROI (US Army Garrison, Alaska 2006, 2007a). Fort Wainwright habitats can be broken down overall by the following percentages: forest (53.4 percent), meadows, bogs, fens (22.6 percent), scrub lands (17.5 percent), disturbed/developed (5.4 percent), early successional (0.4 percent), water, (0.8 percent), and tundra (less than 0.1 percent) (US Army 2004; US Army Garrison, Alaska 2005, 2006, 2007b).

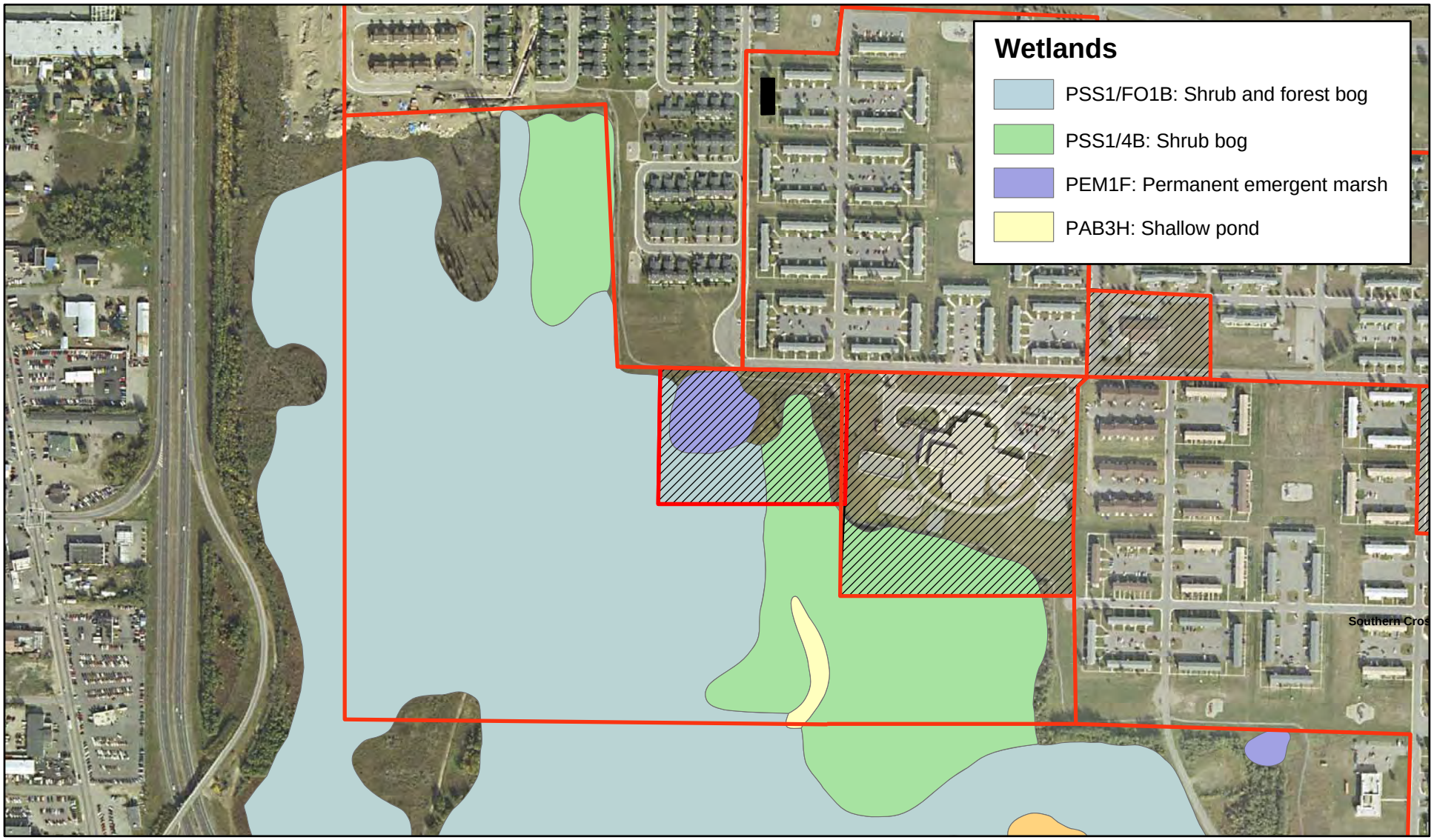
4.7.1.3 Vegetation

Fort Wainwright lies within the Tanana-Kuskokwim lowland within the Northern Boreal Forest. Vegetation types and communities are influenced by climate, soil, topography, depth to water table, permafrost, and fire. Of the many vegetation types at Fort Wainwright, the main types found in the ROI include developed/landscaped areas, forests, scrub, and early successional lands or tundra. There are also wetlands in Undeveloped Area A.

Other than wetlands, which constitute a large portion of Undeveloped Area A, the area in the ROI is largely developed and includes open but disturbed parcels that support a low diversity of wildlife and plant species. The vegetation types found in the ROI are discussed in more detail below; a discussion of the other vegetation types at Fort Wainwright, but not necessarily in the ROI, is also provided for context.

One of Fort Wainwright's ongoing management goals is to conduct a floral inventory, identifying rare, threatened, or endangered plants. A comprehensive survey of rare plants was conducted as part of the floristic inventory for Fort Wainwright in 1995, 1996 (US Army Garrison, Alaska 2004), and 1997 (US Army 2004). Only two plant species on the federal endangered species list are known to occur in Alaska, and neither species' current or historic ranges include Fort Wainwright. Previous reports have also indicated that there are no federally listed endangered or threatened plant species, though there are uncommon, rare, or priority species at the installation (US Army Garrison, Alaska 2004; US Army 2004).

Developed/landscaped areas. Developed areas, disturbed vegetation, and open land make up most of the habitat types on the Main Post. Native vegetation was removed from the Main Post area decades ago during various construction actions. The Main Post consists of roads, housing, offices, barracks, airfields, and other urban facilities. Native species, such as white spruce and birch, are often planted in early successional areas, as well as several ornamental species. These include European bird cherry (*Prunus padus*), Amur chokecherry (*P. maackii*), Siberian crabapple (*Malus baccata*), red-osier dogwood (*Cornus stolonifera*), Siberian pea shrub



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The National Wetlands Inventory identifies an estimated 89 areas of wetlands within the RCI footprint.

Legend

- RCI Property
- Parcel not to be Conveyed
- Building not to be Conveyed

Wetlands

Fort Wainwright, Alaska

Tetra Tech

Figure 4-2

(*Caragana arborescens*), sweetberry honeysuckle (*Lonicera caerulea*), false spirea (*Astilbe chinensis taquetti*), and cinquefoil (*Potentilla* sp.). Very few imported or nonnative species are hearty enough to survive in this environment. This habitat type is additionally characterized by manufactured conditions, such as paved locations, mowed or bulldozed or otherwise disturbed areas, and buildings with minimal landscaping on the surrounding property. The vegetation in disturbed areas generally tends to be weedy or nonnative grasses with low plant diversity. Grasses, shrubs, trees, and flowers that typically are used for landscaping generally do not provide high quality forage or habitat for wildlife species (US Army 2004; US Army Garrison, Alaska 2005, 2006, 2007a).

Forests. Forests are dominant, diverse ecosystems on Fort Wainwright and are predominant in the ROI. Vegetation ranges from pure stands of spruce or hardwoods to spruce/hardwood mixtures. The forests are all part of habitat known as "taiga," wooded vegetation of boreal subarctic latitudes and subalpine elevations adjacent to treeless tundra zones. The Fort Wainwright Main Post consists of both black spruce (*Picea mariana*) and white spruce (*P. glauca*), along with paper birch (*Betula* sp., including *B. papyrifera*), larch (*Larix laricina*), cottonwood (*Populus deltoides*), and quaking aspen (*P. tremuloides*) (US Army Garrison, Alaska 2004, 2006, 2007a). Both black and white spruce are commonly seen, mixed with various deciduous species, such as alder (*Alnus* sp.), birch, and tamarack (*Larix laricina*). Most forests are heterogeneous mixtures of white and black spruce and hardwoods. Predominant hardwoods are birch, quaking aspen, and balsam poplar (*Populus balsamifera*), particularly in well-drained areas. In other areas, aspen forms a canopy over an understory of white spruce. Bottomland white spruce/balsam poplar forest occurs on level floodplains, low river terraces, and south slopes (US Army Garrison, Alaska 2006, 2007a, 2004, 2005). Understory can also consist of grasses, as well as wild rose (*Rosa acicularis*), willow (*Salix* ssp.), and fireweed (*Chamerion angustifolium*). White spruce, paper birch and quaking aspen dominate the well-drained areas on lower and south-facing slopes. Black spruce is typically found at higher elevations, particularly where there may be shallow soils that do not provide good habitat support for other vegetation species. Black spruce also occurs where permafrost is present, such as on north-facing slopes. Black spruce is also common on lower slopes with impeded drainages.

Scrub. Scrub communities of alder and willow are also common in the ROI. These scrub types occur on exposed river bars and along riparian areas.

Early successional lands or tundra. Above the tree line, early successional (occasionally called barren) habitat or tundra typically dominate. These are characterized by sedges and mosses in poorly drained sites and also by low-growing shrubs in dryer areas (US Army 2004). Early successional ecosystems on Fort Wainwright are composed of recently deposited gravel bars in rivers (US Army 2004; US Army Garrison, Alaska 2005) or exposed stream channels of silt, sand, and gravel bars (US Army 2004). There are early successional areas in the ROI in the portion of the ROI that is adjacent to the Chena River.

Wetlands/aquatic. This habitat/vegetation type is present across Fort Wainwright. It is largely absent within the ROI, except within Undeveloped Area A.

Overall, most of the streams and rivers in the Fort Wainwright vicinity (with the exception of the Tanana River) are gravel-bottomed, clear water streams that do not support large amounts of aquatic vegetation. Where there are lakes at Fort Wainwright, aquatic vegetation is composed of emergent, submergent, attached, and floating species. In very shallow water, emergent species such as sedges (*Carex* sp.) and bulrushes (family *Cyperaceae*) dominate. At slightly greater depths (up to 10 feet), submerged plants dominate, such as water milfoil (*Hottonia palustris*),

bladderworts (*Utricularia* sp.), water knotweed (*Polygonum amphibium*), and yellow water lily (*Nuphar lutea*). Deeper than 10 feet, the vegetation may include pondweed (*Potamogeton* sp.) (US Army 2004; US Army Garrison, Alaska 2005, 2006, 2007a).

The Chena River passes through the Main Post just north of the main cantonment area and forms the cantonment area's northwest boundary. It is adjacent to the ROI in several areas. The river originates in the Yukon-Tanana Uplands and derives its water from precipitation and snowmelt. The river flows 155 miles from its source to its confluence with the Tanana River. The Little Chena River flows into the Chena River approximately five miles east of the main cantonment area. The river never completely freezes and always has water flowing under the ice.

Approximately 42 percent (6,500 acres) of the Main Post is classified as wetlands, with palustrine, riverine, and lacustrine (marsh, river, and lake) types (US Army 2004). Wetlands are discussed in further detail below in Section 4.7.1.5. Bogs, fens, and marsh occur throughout the installation (US Army Garrison, Alaska 2004) and in the ROI. Three types of bogs found on the Main Post are sphagnum (*Sphagnum* spp.), sedge (*Carex* spp.), and sheathed cotton sedge (*Eriophogurm vaginatum*). Common associated species include dwarf birch (*Betula nana*), bog rosemary (*Andromeda poifolia*), Labrador tea (*Ledum palustre*), low bush cranberry (*Vaccinum uglinosum*), and willows (*salix* spp.) (US Army 2004; US Army Garrison, Alaska 2005, 2006, 2007a).

High brush. The high brush ecosystem exists as a transitional zone between forests and early successional areas or tundra. High brush is more typically found as part of transition zones in areas that are dry and hilly, such as areas with topographical variation (US Army Garrison, Alaska 2006, 2007a). At Fort Wainwright, the extent of this ecosystem varies, and in some cases it may be quite small. It is ecologically important to plants and wildlife (US Army Garrison, Alaska 2004, 2006, 2007a). According to previous vegetation surveys, this habitat is not known to occur in the RCI footprint.

Moist tundra. Moist tundra occurs on top of Fort Wainwright hills at 2,500- to 3,000-foot elevations. This windy and cold area is above the tree line and supports only the hardiest vegetation. This type of habitat is largely absent from the Main Post, both in terms of elevation and topography (US Army Garrison, Alaska 2004, 2006, 2007a). Vegetation is low, dwarf, or procumbent (characterized by stems trailing along the ground without rooting) and consists of low shrubs, club mosses, lichens, dry land sedges, sparse-scattered grasses, low mat-forming herbaceous and woody plants, and forbs. Upper reaches of this zone are generally steep and rocky. This habitat is exposed to severe weather, and vegetation in this ecosystem is very susceptible to damage (US Army 2004; US Army Garrison, Alaska 2005, 2006, 2007a). This vegetation type is not found in the ROI.

4.7.1.4 Wildlife

Much of the wildlife found throughout Fort Wainwright is forest species since this is the predominant habitat type at the installation, though species that prefer other habitats also do occur. Many species of the boreal forest, including migratory birds, small mammals, as well as moose (*Alces alces*), red fox (*Vulpes vulpes*), lynx (*Lynx canadensis*), coyote (*Canis latrans*), and beaver (*Castor canadensis*), inhabit or use the portions of Fort Wainwright Main Post. Larger mammals, such as moose and the black bear (*Ursus americanus*), occasionally occur in portions of the Main Post or migrate through these areas. The Chena River which is outside of but adjacent to portions of the ROI provides habitat for fish and is also considered Essential Fish Habitat (EFH) for salmon (US Army Garrison, Alaska 2007b).

Most of the land in the ROI has already been developed into roads, offices, training facilities, and maintenance and storage facilities. Species adapted to urban landscapes and human disturbance use these areas. Within the ROI and with the exception of wetlands, these areas do not provide high quality wildlife habitat, compared to the surrounding undeveloped areas (US Army Garrison, Alaska 2005, 2006, 2007a; ADFG 2006). Nonetheless, the habitat available in the ROI still is used by general wildlife species either for foraging or as a part of their wildlife corridors.

Game species found in other parts of Fort Wainwright are managed by the Alaska Department of Fish and Game. These include the black bear, grizzly bear (*Ursus arctos*), moose, caribou (*Rangifer tarandus*), and wolf (*Canis lupus*). Small mammals, such as the snowshoe hare (*Lepus americanus*), shrew (*Sorex* ssp.), and other small rodents, are also present at the installation (US Army Garrison, Alaska 2006, 2007a, 2004, 2005; ADFG 2006). With the exception of small rodents and the occasional moose, these species are not expected to be in the RCI footprint or within the larger ROI, except perhaps on rare occasions.

Some species, such as coyote, red fox, and raven (*Corvus corax*) are ubiquitous in the Fort Wainwright vicinity and can be found in several different ecosystems and in the ROI. Wildlife species found in the ROI are discussed in more detail below by predominant ecosystems or habitats. Discussion of the wildlife present at Fort Wainwright but not necessarily in the ecosystems or habitats of the ROI is also provided for context.

There are no federally listed species in the ROI.

Developed/landscaped area. The developed areas of Fort Wainwright, primarily the Main Post and ROI, do not provide quality habitat, compared to the natural ecosystems in the surrounding areas and vicinity. Nonetheless, many animals may be occasional visitors, particularly at night. Permanent mammal residents are likely limited to small rodents (e.g., rats and mice) and bats (e.g., little brown bat [*Myotis lucifugus*]). Many songbird species may feed during daylight hours in the developed areas (US Army Garrison, Alaska 2006,2007a, 2004, 2005; ADFG 2006). The only amphibian known to occur at Fort Wainwright is the wood frog (*Rana sylvestris*). There are no reptiles at the installation (US Army Garrison, Alaska 2006, 2007a, 2004, 2005; ADFG 2006).

Forests. Mature forests in the Fort Wainwright vicinity contain habitat that supports relatively small populations of wildlife species that are more abundant in other regions of interior Alaska (US Army Garrison, Alaska 2004). Mammals that are found in forest ecosystems include deer mouse (*Peromyscus maniculatus*), pygmy shrew (*Microsorex hoyi*), Arctic shrew (*Sorex arcticus*), ermine (*Mustela erminea*), porcupine (*Erethizon dorsatum*), red squirrel (*Tamiasciurus hudsonicus*), marten (*Mantes americana*), black bear, brown bear, moose, and lynx. The forested areas within the ROI provide some wildlife habitat, but it is relatively unimportant for most species as the habitat is predominantly disturbed or developed and also is typically isolated from other forest ecosystems (US Army Garrison, Alaska 2006, 2007a, 2004, 2005; ADFG 2006). The exception is any birds that use the trees to roost, forage, or nest. Larger mammals, such as the brown bear, are not likely to occur due to their preference for undisturbed forests and meadows. The ROI provides generally low value habitat for moose. There is some adequate habitat for marten, which prey on a variety of rodent species that may also occur there.

Foraging and breeding habitat for several raptor and songbird species is available in the ROI. Birds that are commonly seen in forest habitat include great-horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), gray jay (*Perisoreus canadensis*), spruce grouse (*Canachites canadensis*), ruffed grouse (*Bonasa umbellus*), hairy woodpecker (*Dendrocopos villosus*), hermit thrush (*Hylocichla guttata*), varied thrush (*Ixoreus naevius*), Swainson's thrush (*Hylocichla*

ustulata), and black-capped chickadee (*Parus atricapillus*) (US Army Garrison, Alaska 2006, 2007a, 2004, 2005; ADFG 2006).

Wetlands/aquatic. Wetlands at Fort Wainwright support a number of aquatic mammals, including mink (*Mustela vison*), river otter (*Lutra canadensis*), muskrat (*Ondatra zibethica*), and beaver. Several fish species inhabit the water bodies of Fort Wainwright, including chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), sheefish (*Stenodus leucichthys*), Arctic grayling (*Thymallus arcticus*), northern pike (*Esox lucius*), burbot (*Lota lota*), lake chub (*Couesius plumbeus*), and rainbow trout (*Oncorhynchus mykiss*). The Arctic grayling is the most popular target of recreational fishermen. The Chena and Salcha Rivers are important spawning areas for chum salmon (*Oncorhynchus keta*), arctic grayling, and chinook salmon (US Army Garrison, Alaska 2006, 2007a, 2004, 2005; ADFG 2006). Most ponds or lakes throughout Fort Wainwright do not support fish populations during the winter, as the lakes freeze completely over or lack sufficient oxygen when iced over for fish to survive (US Army 2004). However, a stocking program provides recreational fishing opportunities for the public during the summer. Examples of lakes that have been stocked in the past include River Road Pond, Monterey Lake on the Main Post (currently stocked), Weigh Station Ponds 1 and 2 (both ponds last stocked in 2001), and Manchu Lake (currently stocked) (ADFG 2008a, 2008b). The ponds in the ROI are not stocked seasonally. The one shallow pond found in the RCI footprint does not freeze solid during the winter (Garron 2008). More detail on this pond can be found in the section below on sensitive habitats and communities under the wetlands discussion.

Tens of thousands of water birds occur throughout Alaska and more specifically, in some of the wetland complexes, ponds, and lakes in parts of Fort Wainwright. These areas are high value habitat, which many bird species use. While these water bodies are limited or not present in the ROI, some of these birds may pass through the ROI. The predominant species are cranes, geese, ducks, and swans. Tanana Flats Training Area is known for many different migratory waterfowl species, which inhabit the area seasonally (US Army Garrison, Alaska 2007a). Common bird species other than waterfowl in the wetland areas are alder flycatcher (*Epidonax alnorum*), hawk owl (*Surnia ulula*), and mew gull (*Larus canus*) (US Army Garrison, Alaska 2006, 2007a, 2004, 2005; ADFG 2006).

Scrub, barren lands or tundra, high brush. Wildlife species found in these habitat areas are typically not restricted to these habitats alone and may also occur in forests or wetland habitats. Some of the more common species associated with the Fort Wainwright ecosystems are for the most part not found in the ROI but rather in surrounding parts of the installation. Nonetheless, this habitat may be used by general wildlife species on occasion, either for foraging or as a part of a wildlife corridor. The most prominent animal in the high brush ecosystem is moose, which is found on the Main Post and throughout Fort Wainwright (US Army Garrison, Alaska 2004). Moose calve in the Tanana Flats Training Area, but not on the Main Post (US Army Garrison, Alaska 2004). Other mammals that are found in brushy areas are least weasel (*Mustela rixosa*) and snowshoe hare. Songbird species are common in scrub or brushy areas, including orange-crowned warbler (*Vermivora celata*), dark-eyed junco (*Junco hyemalis*), common redpoll (*Acanthis fammea*), hoary redpoll (*A. hornemanni*), Bohemian waxwing (*Bombycilla garrulus*), and American robin (*Turdus migratorius*) (US Army Garrison, Alaska 2006, 2007a, 2004, 2005; ADFG 2006).

Moist tundra. The diversity of animals in the tundra ecosystem is lower than in the other ecosystems of Fort Wainwright due to the harsh climate typical of the tundra. Small mammals found in this habitat, including several rodent species, provide prey for wolves that may occur in this same habitat. Mammals, such as Alaska vole (*Microtus miurus*), tundra vole (*M. oeconomus*),

northern bog lemming (*Synaptomys borealis*), and Arctic ground squirrel (*Citellus undulatu*), are examples of such prey. The most common bird species in the tundra is snow bunting (*Plectrophenax nivalis*).

4.7.1.5 Sensitive Habitats, Communities, or Species

Special status species include those protected under federal laws and regulations, including the Endangered Species Act of 1973 (ESA), the Migratory Bird Treaty Act of 1918 (MBTA), the Bald and Golden Eagle Protection Act (Eagle Act), and the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The National Marine Fisheries Service (NMFS) is the agency that implements the MSA guidelines protecting anadromous fish species. Also, managed fisheries protected by the Alaska State Anadromous Fish Act are considered sensitive. Sensitive habitats, such as EFH and jurisdictional wetlands and waters, are protected under the ESA and the MSA. Sensitive species include those that the USFWS or the ADFG lists or has proposed for listing as endangered, threatened, or candidate species. Sensitive species are provided varying levels of legal protection under federal and state endangered species acts.

Sensitive habitats and communities

Sensitive or unique communities. There is no designated or proposed critical habitat near the ROI (USFWS 2007). Over the entire area of Fort Wainwright there are several special management areas of concern due to their unique natural features. These areas provide habitat for sensitive or unique wildlife species or plant communities. One of these is found in the Main Post, though not in the ROI. The Sage Hill Special Interest Area overlooks a wetland (Sage Hill Pond) on the Main Post and is designated as a watchable wildlife area (i.e., it is set up for visitors to stay and watch wildlife from platforms and stations). The south-facing bluffs have ecological significance due to the unique vegetation communities found there. The Sage Hill area has already been affected by human disturbance as a result of gravel removal (US Army Garrison, Alaska 2004) but is an active wetland supporting numerous species and providing wildlife viewing opportunities.

Wetlands. The US Army Corps of Engineers regulations (Environmental Laboratory 1987) define wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” Wetlands are important because they perform significant biological functions, such as providing nesting, breeding, foraging, and spawning habitat for a variety of resident and migratory animal species, as described in 4.7.1.4 Wildlife above. Wetlands provide high value habitat for fish and wildlife, allow for water quality improvement, flood storage, shoreline erosion protection, recreational opportunities, and aesthetic enhancement, and provide natural products for human use. Protecting wetlands can protect human health and safety by reducing flood damage and preserving water quality.

Wetland assessments usually result in categorization of wetlands as either high or low functioning. Higher functioning wetlands are considered of greater value as they are important for water storage, sediment collection, or removal of dissolved elements during runoff or floods, and they may provide valuable wildlife habitat for a variety of species. There are four types of higher functioning wetlands: lacustrine fringe, depressional water bodies, riverine, and slope wetlands. Other wetlands are classified as lower functioning if they do not provide high value habitat or hydrological functions.

Aquatic mammals found in wetland habitats include mink, river otter, muskrat, and beaver. Common bird species in the wetland areas are alder flycatcher, hawk owl, and mew gull. Some areas within Fort Wainwright and its associated training lands have undergone formal wetland delineation. Currently, Fort Wainwright environmental staff are formally delineating wetlands within the Main Post cantonment area, which includes portions of the RCI footprint.

Within the ROI, wetlands can be divided into ponds, marshes and shrub wetlands. Ponds have standing water year-round and have submergent and floating vegetation. Marshes are dominated by emergent vegetation and semi-permanently flooded hydrology. Shrub wetlands, also known as bogs, muskeg, swamp, and low brush, are the most common wetland type within the ROI and are associated with slightly higher relief on the edges of marshes, and are also found in poorly drained basins and depressions with cold waterlogged soils. Shrub wetlands are associated with either standing water or a high water table. This ecosystem type makes up approximately 64 percent of the western section of Fort Wainwright (US Army Garrison, Alaska 2004) and the type of wetlands in the ROI (in Undeveloped Area A). The surface of shrub wetlands consists primarily of a thick layer of peat over a mottled, gray silt, or silt loam. Ground cover is characterized by dense accumulations of mosses, lichens, sedges, rushes, liverworts, mushrooms, and other fungi. Stunted black spruce occasionally occurs in these wetlands.

The wetlands within the ROI are lower functioning. According to the National Wetland Inventory (NWI) overlay for this portion of Fort Wainwright, four wetland types are found in the ROI (mainly in Undeveloped Area A). An estimated 79.5 acres of habitat found in the Main Post in the ROI (in Undeveloped Area A) meets the criteria for wetlands, based on NWI data. Wetland types identified include (Figure 4-2):

- PSS1/FO1B—Shrub and Forest Bog: This wetland type comprises 57.6 acres within the ROI. It is a non-tidal wetland dominated by scrub-shrub and forested vegetation, with permanently saturated soils. Shrubs are categorized as woody vegetation less than 6 m (20 feet) tall and include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions. In contrast, forested vegetation is 6 m or taller and is composed of woody trees or shrubs with relatively wide, flat leaves that are shed during the cold or dry season.

- PSS1/4B—Shrub Bog: This wetland type covers 21.1 acres within the ROI. Similar to the shrub and forest bog, it is a non-tidal wetland that has permanently saturated soils. Shrub plants dominate this wetland type.

- PEM1F—Permanent Emergent Marsh: There is no area within the ROI that is characterized as permanent emergent marsh. This habitat is defined as a nontidal wetland that is semipermanently flooded and is dominated by emergent vegetation that normally remains standing at least until the beginning of the next growing season. There are 1.9 acres of permanent emergent marsh next to Undeveloped Area A, but none of this habitat type is within the ROI.

- PAB3H—Shallow Pond: There is one shallow pond within the ROI, covering 0.8 acres. It is permanently flooded and supports plants that grow principally on or below the surface of the water for most of the growing season in most years. The water is generally less than 2 meters (6.6 feet) deep.

It is possible that some of the wetlands may qualify as jurisdictional, as defined in Section 404 of the Clean Water Act. The US Army Corps of Engineers determines jurisdictional wetlands according to a set of protocols that categorizes soils, vegetation, and hydrology.

Sensitive plants. There are four plants of concern that are noted for prioritization for the Army posts in interior Alaska (US Army Garrison, Alaska 2007a). These are listed because they are rare (for example, *Apocycnum androaemifolium* and *Festuca lenensis*), imperiled (for example, *Dodecatheon pulchellum pauciflorum*), or uncommon in Alaska (for example, *Minuartia yukonensis*). None of these species and no ESA-listed species occur in the ROI (US Army 2004; US Army Garrison, Alaska 2004).

Sensitive wildlife. There are no federally listed ESA species on Fort Wainwright or in the ROI (USFWS 2007). However, there is habitat that supports many sensitive species of migratory birds, including eagles, and many migratory bird species nest on the Main Post (Douse 2008) and in the ROI. The Chena River is identified as a waterway important for spawning, rearing, or migration of anadromous fish and is considered EFH for freshwater larval, juvenile, and adult chum and chinook salmon (US Army Garrison, Alaska 2004, 2007b). Anadromous fish species are also protected under the MSA. Salmon are found in the Chena River, but this is outside of the ROI. No fish species occur within the ROI.

In 2002, the National Defense Authorization Act was signed. Section 315 exempts the Armed Forces for the incidental taking of migratory birds during military readiness activities (MRAs). The Authorization Act says that allowing incidental take of migratory birds as a result of MRAs is consistent with the MBTA and the treaties. However, Armed Forces must still give appropriate consideration to protecting migratory birds, though not at the expense of diminishing the effectiveness of such activities. Guidance for minimizing impacts on MBTA species is also provided via an internal Army Memorandum of Understanding (MOU) dated July 28, 2008. This addresses interim guidance for unintentional takes of MBTA birds for actions other than MRAs.

Fort Wainwright also receives an annual depredation permit, which is specifically for support of MRAs and is used to address situations such as birds nesting on Stryker vehicles or in tactical vehicle maintenance facilities. However, that permit would not be used for the RCI project.

Several MBTA-protected bird species occur either as residents or incidental transients throughout Fort Wainwright. Some migratory birds may use the forested habitat found in the ROI (US Army 2004; US Army Garrison, Alaska 2004, 2007a; Douse 2008). However, the trees in the Main Post provide only marginal roosting and limited foraging habitat for migratory birds. Cliff sites, preferred nesting habitat for numerous raptors, do not exist in the ROI. The trees lining the roads within the ROI are not likely to provide valuable habitat to any migrating birds because there are other more suitable trees in the area. Moreover, the trees in the ROI are close to areas of human disturbance, human presence, and noise, all of which are a deterrent and reduce the quality of the habitat. Bird species that may occur in the ROI are discussed below.

Two MBTA species that are known to occur within the ROI are the cliff swallow (*Petrochelidon pyrrhonota*) and the mew gull (*Larus canus*). Both species also can be considered pests.

The cliff swallow breeds in a variety of habitats, preferring open foraging areas, and is known to commonly build mud nests (or nesting colonies) attached to buildings and other structures and often lives close to people. Swallows and their nests are fully protected under the MBTA. While destruction of a nest by itself is not prohibited under the MBTA, nest destruction that results in the unpermitted take of migratory birds or their eggs is illegal and fully prosecutable under the

MBTA. The MBTA allows fines or prison sentences for every bird, egg, or nest destroyed. Cliff swallows arrive at nest colonies in successive waves. The species has a homing tendency, whereby adults that previously nested at a colony often return, followed by adults who bred at other colonies in previous years and by young birds who have not yet bred. In addition to their homing tendency, breeding swallows are attracted to old nests. Under suitable conditions, a nest is quite durable and can be used in successive years.

Mew gulls, also protected under the MBTA, nest throughout the Main Post and are a problem, in that they nest opportunistically on any elevated platform that is inactive for more than a day. Mew gulls, as well as cliff swallows, can build a nest and lay eggs in a very short span of time, such as within two days.

With both cliff swallows and mew gulls, inactive nests are not protected and can be removed. The nest is considered active as soon as it has an egg. From this point onward, the nest is active and the adult and nest cannot be harassed, removed, moved, or touched until the nestlings have fledged.

The bald eagle (*Haliaeetus leucocephalus*) is an MBTA-protected species and is also protected under the Eagle Act. The USFWS recently removed the bald eagle from the ESA species list in the lower 48 states, and it has never been federally listed in Alaska, where the populations have always been healthy.

Widespread concern for the future of the bald eagle led Congress to pass the Bald Eagle Protection Act in 1940. The act prohibited, among other things, the taking, possession, and sale of bald eagles or their parts, eggs, or nests (though a take can be authorized with a permit). The act was amended in 1959 to include Alaska and was further amended in 1962 to protect the golden eagle (*Aquila chrysaetos*), in part because of the difficulty in distinguishing golden eagles from immature bald eagles. The bald eagle was delisted in 2007. The MBTA concerns the conservation and protection of migratory birds, and a number of bird species are covered by the MBTA. Migratory birds are not necessarily federally listed as endangered or threatened under the ESA. The MBTA prohibits the take, possession, import, and export of migratory birds.

The bald eagle is locally common in the region and does occur at Fort Wainwright. There are no nesting locations for this species in the Main Post area (ADFG 2006; US Army Garrison, Alaska 2004, 2006, 2007a), but trees that may support bald eagle roosting sites or foraging staging stands are present in Undeveloped Area A. It may be that some of the harvestable trees in Undeveloped Area A could support nesting at some future time (Ajmi 2007).

The golden eagle (*Aquila chrysaetos*), protected under the Eagle Act and the MBTA, is known to be a resident of forest and alpine habitats similar to those found on Fort Wainwright. This species is known to occur on Fort Wainwright training lands, though there are no known nesting locations for it on the Main Post or in the RCI footprint (US Army Garrison, Alaska 2004, 2007a; US Army 2004).

Species of management concern is another category of sensitive wildlife, and some migratory nongame bird species of management concern are noted by the USFWS for Alaska. While some of these might occur at Fort Wainwright, none are expected to be found in the ROI. Species of management concern found throughout the installation include the trumpeter swan (*Cygnus buccinator*), common loon (*Gavia immer*), American osprey (*Pandion haliaeetus*), peregrine falcon (*Falco peregrinus*), northern harrier (*Circus cyaneus*), northern goshawk (*Accipiter gentilis*), olive-sided flycatcher (*Contropus borealis*), alder flycatcher (*Empidonax alnorum*), gray-

cheeked thrush (*Catharus minimus*), and blackpoll warbler (*Dendroica striata*) (ADFG 2006; US Army Garrison, Alaska 2004).

Some of the birds found throughout the installation are listed by the State of Alaska as sensitive (US Army Garrison, Alaska 2004): the gray-cheeked thrush, blackpoll warbler, American peregrine falcon, golden eagle, olive-sided flycatcher, Arctic peregrine falcon (*Falco peregrinus tundrius*), and Townsend's warbler (*Dendroica townsendii*). None are expected to occur in the ROI, except for the gray-cheeked thrush, which is common at Fort Wainwright and may occur in the ROI, and the American peregrine falcon. The latter is an MBTA-protected species and was previously listed, but the USFWS now considers this species recovered. The American peregrine falcon nests in forested areas of interior Alaska and migrates through central, south-central, and southeastern Alaska during spring and fall. There is no designated critical habitat for American peregrine falcons in Alaska. Peregrines do occur at Fort Wainwright (US Army Garrison, Alaska 2004), though no nesting is known to occur in the ROI or in its immediate vicinity (US Army Garrison, Alaska 2004). The gray-cheeked thrush is common at Fort Wainwright, as its habitat is mainly forested wetlands and riparian areas, and it would most likely occur in undeveloped/vacant areas of the ROI, such as Undeveloped Area A. The gray-cheeked thrush is known to breed and nest in areas with small shrubs and a dense understory.

The US Forest Service lists as sensitive two bird species known to occur elsewhere on Fort Wainwright: the osprey and trumpeter swan, neither of which is expected to occur in the ROI.

A number of species confirmed in other areas at Fort Wainwright are included on the Boreal Partners in Flight Working Group (US Army Garrison, Alaska 2004) as target or priority species for monitoring because of international declines in populations. Boreal Partners in Flight is a working group made up of biologists, land managers, teachers, and birders who focus on conservation of bird populations in the boreal regions of North America. There are no legal requirements to manage these species, although all are afforded some protection under the MBTA. None of these birds are expected to occur in the ROI.

4.7.2 Consequences

For this analysis, an action would have an adverse impact on biological resources if it would harm plant or wildlife species or habitats. The determination of significant impacts on biological resources includes direct and indirect impacts. Direct impacts are those in which activities reduce or remove a biological resource, such as the results of construction or grading. Indirect impacts could occur when the activity causes other actions that affect biological resources. For example, if more people are present in the ROI, then there could be indirect impacts on sensitive species from resultant noise or from heavier pedestrian use of the area. Indirect impacts also may occur from introducing runoff materials into sensitive habitats.

Impacts on biological resources found in the ROI were evaluated by determining the sensitivity, significance, or rarity of each resource that could be adversely affected by any of the proposed project actions associated with the various alternatives and by using thresholds of significance to determine if the impact constitutes a significant impact. The significance threshold may be different for each habitat or species.

In this analysis, an alternative is considered to have a significant impact on biological resources if it were to result in any of the following:

- Adversely affect a population of a threatened, endangered, regulated, or otherwise designated sensitive species, for example by reducing numbers, by altering behavior, reproduction, or survival, or by loss or disturbance of habitat. (By definition, any take of a listed or sensitive species protection by regulations is considered significant);
- Have a substantial adverse affect on a species, natural community, or habitat that is specifically recognized as biologically significant in local, state, or federal policies, statutes, or regulations;
- Have a substantial adverse affect on a species, natural community, or habitat that is recognized for scientific, recreational, ecological, or commercial importance;
- Impede fish or wildlife migration routes for a period that would significantly disrupt that migration;
- Alter or destroy habitat that would prevent reestablishment of biological communities that inhabited the area before the proposed projects;
- Extensively alter or cause a loss of biological communities in high-quality habitat for longer than one year; or
- Impact unique communities or communities of limited distribution within the project area.

Effects on vegetation, wildlife species, and habitats are not considered significant unless an action were to substantially disturb an ecosystem beyond the normal variability of the species or community or if it were to violate federal, state, or local laws protecting habitats. Populations of plants and animals and the diversity of species within habitat communities fluctuate naturally.

4.7.2.1 Proposed Action

The proposed action would occur at the Main Post of Fort Wainwright, which is approximately 13,700 acres of a larger 1.5 million acres of Fort Wainwright land. Of the 626 acres within the RCI footprint, 522 acres are already developed. The 104 acres of undeveloped/vacant areas on the Main Post would not be developed under the proposed action; any subsequent activities proposed in these areas would be addressed in supplemental or additional NEPA analysis.

Minor adverse effects on biological resources are expected to result from either phase of the proposed action; that is, from construction, demolition, and renovation or from operational activities. The RCI footprint is already subject to high levels of human activity, is considered to be highly developed and disturbed, and is not known to permanently support any sensitive species or habitat.

Construction, Demolition, and Renovation. For most of the biological resources found in the ROI, no adverse impacts are expected from the proposed construction, demolition, and renovation. In terms of overall impacts on biological resources, construction, demolition, and renovation would not create significantly greater amounts of noise and disturbance than already exist on the installation. They also would not degrade the habitat further in any meaningful way. Short-term development-related impacts from noise or from direct mechanical disturbance related to these activities could affect general vegetation or wildlife in the already developed areas, but impacts are expected to be minor adverse or in most cases to have no impact. Noise impacts from development are within the spectrum of what normally occurs in this area. Immobile species, such as plants, or wildlife with limited mobility, such as crawling insects, may be crushed by

earthmoving equipment, but this would not constitute a loss of any sensitive or listed resources. Other more mobile species, such as birds and most mammals, would likely move to nearby similar habitats. Because development would occur in a limited time frame, any associated impacts are considered temporary and would constitute a minor adverse impact on common plants and wildlife.

However, there is a very low probability that inadvertent, accidental, or incidental take of migratory birds could occur during construction, demolition, or renovation. Certain species of migratory birds, such as cliff or bank swallows (*Riparia riparia*), or bald or golden eagles could have adverse impacts. As described below, where these impacts are potentially significant, Army Alaska Family Housing would implement mitigation measures to reduce them to minor adverse.

Fort Wainwright's wildlife management program practices, along with the CDMP and the INRMP, also would be implemented to ensure that no wildlife would be harmed by the proposed action within the ROI. Army Alaska Family Housing would operate within the guidelines of the Environmental Concerns document (Appendix A) that uses an Environmental Management System and addresses compliance with protections for natural resources. These would cover protections to wetlands, timber, fish, and migratory birds.

MBTA Species. Construction, demolition, and renovation may affect MBTA species that are potential nesters in the area. These activities could disturb those species should they be nesting on buildings and trees that are the subject of those activities. In the extreme, development activities could result in the take of an MBTA species, resulting in a significant adverse impact. To reduce impacts to minor adverse, Army Alaska Family Housing would implement mitigation measures and best management practices.

To avoid or minimize impacts on bird species protected under the MBTA, there are several general protections that would be implemented to reduce the risk of an MBTA take. These measures include protections from the DOD MBTA Final Rule, the Environmental Concerns document in Appendix A, as well as the MOU between DOD and USFWS:

- Whenever possible, seasonal work windows would be used to ensure that no migratory birds are harmed during development actions. To the greatest extent practicable, clearing vegetation from May 1 to July 15 would be avoided. Every practicable attempt would be made to begin clearing vegetation before May 1 to reduce the risk of take; or
- If seasonal windows could not be avoided, a qualified biologist would conduct surveys immediately before and during project activities. If surveys occur within the breeding season (February through August), the following additional measures would be undertaken:
    - Survey the project site boundaries just before clearing and flag any visible migratory bird nests, including any ground nests of birds protected by the MBTA, so the equipment operators can avoid disturbing the nest or the vegetation holding the nest. The birds would be left undisturbed until the young fledge;
    - During clearing, the equipment operator would pay attention and avoid any visible nests or birds;
    - A 100-foot radius exclusion zone around the nest would be demarcated by fencing. If unoccupied or partially constructed nests of MBTA birds are discovered, the nests would be removed by, or under the direct supervision of, a qualified biologist;

- If surveys reveal nesting birds protected by the MBTA in buildings proposed for demolition, the nests would be avoided and the birds would be left undisturbed until the young fledge;
- If unoccupied or partially constructed nests of MBTA birds are discovered, the nests would be removed by, or under the direct supervision of, a qualified biologist. If birds begin establishing nests within buildings to be demolished, the nest materials would be removed in accordance with MBTA guidelines and with a permit as needed to deter further nest establishment; and
- If migratory birds or their protected nests were found and could not be avoided, the Army would consult with the USFWS to address any takes before disturbing the birds or their nests.

Cliff Swallows. Demolition of buildings could destroy occupied cliff swallow nests, causing a take and a significant adverse impact. To reduce impacts to minor adverse, Army Alaska Family Housing would:

- Use proactive deterrents as the most effective way to decrease the possibility of affecting nesting birds. A proactive management system should be put in place to remove nests being constructed before they become occupied. When possible, Army Alaska Family Housing would remove nests or nest materials before migration starts and maintain these clean areas.
- Check buildings each spring in mid-April. Any small openings would be covered to bar entry to nesting birds. All stovepipes and dryer vents would be checked regularly and covered when not in use to prevent birds from nesting. Screening also could be used to discourage nesting. If nesting could not be prevented, then the established nest would be left in place until the chicks fledge and adult birds leave the nest.
- Design buildings to take into account the propensity for cliff swallows to nest under the eaves of housing and the tendency of birds to return to established nests. Structural design features include making sure to minimize sharp angles, reduce overhangs or squared off corners as much as possible, or use an additive to the building materials that emulates “slime,” discouraging birds from nesting. Several commercial products are also available to prevent nests from being established, including nets, spikes, electric or ultrasonic emissions, various repellents, sloping devices, traps, and wires. These products would only be used when no established and occupied nests are present.
- Use an education program using Fort Wainwright’s educational materials to establish active wildlife management to anticipate and avoid potential impacts. Educational material disseminated in the installation publication as well as posted in public areas would support management.
- Use, where practicable, the following Boreal Partners in Flight Working Group guidance:
  - Use preventive measures and a proactive approach as the most efficient and simple way to deal with the nesting birds;
  - Prevent nesting between first arrival to July 15;
  - Do not remove nests until all signs of occupancy are gone;
  - Monitor any and all areas that will be of importance between first arrival and July 15 for nest construction;

- Remove nest constructions while being built. If in doubt of occupancy, leave nest or consult with USFWS experts to assess;
- Continue monitoring and proactive measures until July 15; and
- Consider obtaining materials to prevent nesting if monitoring is lacking.

Other Colonial Migratory Bird Species. Impacts on mew gulls are not expected; nesting sites (typically inactive elevated areas) would not be enhanced or reduced by the RCI project. The RCI project would likely not result in the intentional removal or intentional take of a MBTA bird or an active nest. No land or vegetation clearing would occur, but there is a very low probability that inadvertent, accidental, or incidental take of migratory birds would occur during construction, demolition, or renovation. Thus, precautionary measures would be included to be sure that impacts would not occur. Impacts on mew gulls would be minimized similarly as for cliff swallow by using the protection measures listed above for MBTA species and also those mentioned for the cliff swallow.

Other colonial species, such as breeding bank swallows, might be attracted to certain construction materials. Large mounds of dirt piled and unused for long periods are very attractive to this species. Any such materials should be covered with plastic sheeting, especially if they will be left for long periods.

Bald and Golden Eagles. Impacts on bald and/or golden eagles are not expected; nesting sites are not known to occur in the project footprint. Also, the RCI project would likely not result in the intentional removal or "intentional take" of an eagle or an active nest. No land or vegetation clearing will occur. However, the very low probability that inadvertent, accidental, or "incidental take" of eagles could occur during construction, demolition, and/or renovation makes inclusion of precautionary measures important. These would ensure that impacts would not occur. Activities during construction would comply with both the MBTA and the Eagle Act. Protection measures for bald eagles and golden eagles would be similar to those described above for MBTA species. In addition, Army Alaska Family Housing would employ the following measures to reduce impacts:

- Survey the project site boundaries immediately prior to any clearing and flag any visible eagle nests so the equipment operators can avoid disturbing the nest or the vegetation holding the nest. The birds would be left undisturbed until the young fledge; and
- If an inactive bald or golden eagle nest is suspected within the footprint of the project, consider moving the project 660 feet away from the nest site.

Gray-Cheeked Thrush. Because Undeveloped Area A would remain undeveloped, it is unlikely that there would be an impact on the gray-cheeked thrush or its breeding and nesting habitat. Due to the multitude of forests within Fort Wainwright and the surrounding area, minor, if any, impacts are anticipated for this species.

Operational Activities. Because the proposed action would not increase personnel within the footprint nor have any substantive changes to existing activities, the operational activities would not impact biological resources. These activities would not result in a long-term increase in human activity or other actions that could have an effect on vegetation, general wildlife, sensitive species, or habitat. No effects on threatened or endangered species are expected from implementing the proposed action because no listed wildlife or plant species are found in the

ROI. No direct or indirect impacts on biological resources are expected as a result of the operation of the proposed facilities.

4.7.2.2 No Action Alternative

Implementing the no action alternative would result in no change to existing conditions, so there would be no effects on biological resources at Fort Wainwright. No RCI construction would take place under this alternative, and no operation changes would occur, so there would be no effects on any species within these habitats or on the habitat in the ROI, particularly as they are already disturbed. Without any new structures, surfaces, or soil disturbance, the existing conditions would remain unchanged.

4.8 CULTURAL RESOURCES

4.8.1 Affected Environment

The following section is a discussion of the affected environment for cultural and historic resources for the proposed project. Cultural resources are historic properties (buildings, structures, districts, landscapes, as defined by the National Historic Preservation Act (NHPA), Native American sites, archaeological sites, districts, and objects that are eligible for or listed on the National Register of Historic Places (NRHP); cultural items, as defined in the Native American Graves Protection and Repatriation Act of 1990; Native American, Native Alaskan, or Native Hawaiian sites for which access is protected under the American Indian Religious Freedom Act of 1978; archaeological resources, as defined by the Archaeological Resources Protection Act of 1979 and Antiquities Act of 1906; and archaeological artifact collections and associated records, as defined by 36 CFR Part 79.

RCI activities could adversely affect cultural resources by leasing federal historic properties, undertaking new construction that may affect archaeological or Native American sites, and remodeling, renovating, or removing historic properties.

The Integrated Cultural Resources Management Plan (ICRMP) for 2001 through 2005 for Forts Wainwright and Greely (US Army 2001) provides the basis and direction for managing cultural resources on Fort Wainwright. Of importance is the document's Standard Operating Procedure for Demolition of Historic Properties. It states that management options for buildings or structures listed on the NRHP or found eligible for listing "must always begin with the intent to use historic properties to meet the installation's mission(s)" (US Army 2001). However, if this is not a viable option, all legitimate options for maintaining the property must be explored. The ICRMP requires an economic analysis be conducted to determine if demolition is the appropriate action. As part of the decision making process, project proponents must first consult with the Fort Wainwright Cultural Resource Manager (CRM), the Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Office (SHPO), and interested parties. If demolition can be demonstrated to be the appropriate management option, the NRHP-listed or -eligible historic property may be demolished following completion of the Section 106 process.

4.8.1.1 Programmatic Agreement

Fort Wainwright has developed a draft programmatic agreement (PA) for military family housing privatization under the proposed action (see Appendix C). Once the PA is signed and executed, it will be incorporated into the ground lease, and Army Alaska Family Housing and the US Army will adhere to its terms and conditions for the proposed RCI action. This PA among the Army, the Alaska State Historic Preservation Office, the Advisory Council on Historic Preservation, and the Army Alaska Family Housing allows Army Alaska Family Housing to rehabilitate, maintain, and treat historic properties within the RCI area of potential effect (APE), as long as all parties adhere to the stipulations listed in the PA. It also states that Army Alaska Family Housing "shall not demolish any historic property without written consent of the Army and then only when permitted to do so in accordance with the standard procedures set forth in the 36 CFR Part 800, as amended." A list of activities that are exempt when conducted in accordance with the Secretary of the Interior Standards and the National Park Service Preservation Briefs are also listed in the PA. The project owner is not required to consult with US Army Garrison - Fort Wainwright or the SHPO before undertaking any of the exempt activities listed in Exhibit 4 of the PA. The PA also

includes procedures for reviewing unanticipated discoveries of archaeological or other historic properties.

4.8.1.2 Prehistoric and Historic Background

Prehistory. The earliest inhabitants of Alaska were nomadic hunters that probably entered the area from Siberia during the Wisconsin Ice Age. Dates from archaeological sites in Alaska have ranged from around 13,000 years ago, during the Terminal Pleistocene, to the arrival of Europeans in the late 1810s (US Army 2001). Archaeologists have determined three broad archaeological themes for interior Alaska, based on the Paleoarctic Tradition (12,000 to 8,000 years ago), the Northern Archaic Tradition (6,500 to 1,000 years ago), and the Athabaskan Tradition (2,500 to 150 years ago) (US Army 2001). Most of the remains from sites throughout these traditions consist of lithic (stone) materials modified by humans to make tools.

The Paleoarctic Tradition, the earliest representation of human occupation in Alaska, includes adaptations to a treeless steppe-tundra environment by nomadic hunters. Sites are typically located on ridges, hills, bluffs, and terraces, presumably for the advantage of locating and tracking prey. These adaptations dictated the type of tools needed and created during the Paleoarctic Tradition. Tools of this cultural tradition consisted mostly of small stone microblades for creating projectiles and microblade cores, items easily transported or made from the stone material available.

The Northern Archaic Tradition developed in the interior of Alaska as an adaptation to the forested environment of the region. Side-notched projectile points are the dominate artifact of this tradition, which also includes bifacial knives, microblades, end scrapers, and a variety of other tools.

Compared to the preceding traditions, more is known about the Athabaskan Tradition due to ethnographies, oral histories, and preservation. The tradition is subdivided linguistically and geographically into subgroups that live in Canada and interior Alaska. In the Tanana Valley, where Fort Wainwright is located, four subgroups have been identified: the Upper Tanana, Tanacross, Tanana, and Koyukon. The Fort Wainwright area is historically associated with the Tanana and Tanacross subgroups. The Tanana Valley subgroups are further divided by geography into the protohistoric bands, the Salcha, Chena, Wood River, Goodpaster, and Healy Lake. The characteristic artifact assemblage from Athabaskan sites consists of bone and antler projectile points, fishhooks, beads, buttons, birch bark trays, and bone gaming pieces. How these artifacts were used varied within the region from band to band. Settlement patterns of this tradition depended on the availability of subsistence resources within the region and therefore were varied.

History. The post-European contact history of the region is also divided into themes, similar to the prehistory of interior Alaska: Early Contact (1810s to 1880s), Gold Rush (1880s to 1928), Development of Transportation and Communication Networks (1890s to 1910s), and Military Activities (1890s to the present). These categories are based on European activities in the area. The Early Contact period of interior Alaska was initiated by Russian fur traders, joined later by British fur traders, with both groups establishing posts in the region. American traders ultimately took over the fur trade when the United States purchased Alaska in 1867 (US Army 2001). Traded goods typically included tobacco, cloth, axes, food, firearms, ammunition, cooking utensils, and other items. The trade industry enormously altered the traditional lives of Alaskan tribes. Not only did the availability of firearms change the way hunting was conducted, but resources were in general more readily available to them through the trading posts. As such,

groups became more sedentary, abandoning the traditional seasonal hunting and settlement movements.

The Gold Rush brought another influx of Europeans to Alaska in search of wealth. Settlers likely first established themselves in the Tanana Valley during this time (US Army 2001). Mining activities in the Fairbanks area focused on lode and placer gold deposits, the latter being the most common (Burr Neely 2001). Several trails, cabins, and sites were created during this period, and their remains are still present on Fort Wainwright and in the surrounding areas. Overland trails were established to provide access to Fairbanks and mining camps in the area. The US Army began establishing the Valdez-Fairbanks Trail (Site XBD-133) in 1899, with a Fairbanks branch created in 1904. Later the trail was used for wagons and then automobiles. With the trail's increased use, roadhouses began to spring up along the route, and their remains still exist on Fort Wainwright and in the surrounding region. The increasing population numbers in the Fairbanks area prompted the US Army to create better communication networks in the form of the Washington-Alaska Military Cable Telegraph System and telegraph station between 1899 and 1906. The establishment of Fort Wainwright began in 1937, when 960 acres near Fairbanks were withdrawn. Initial construction of Ladd Field (now known as Fort Wainwright) began in 1939.

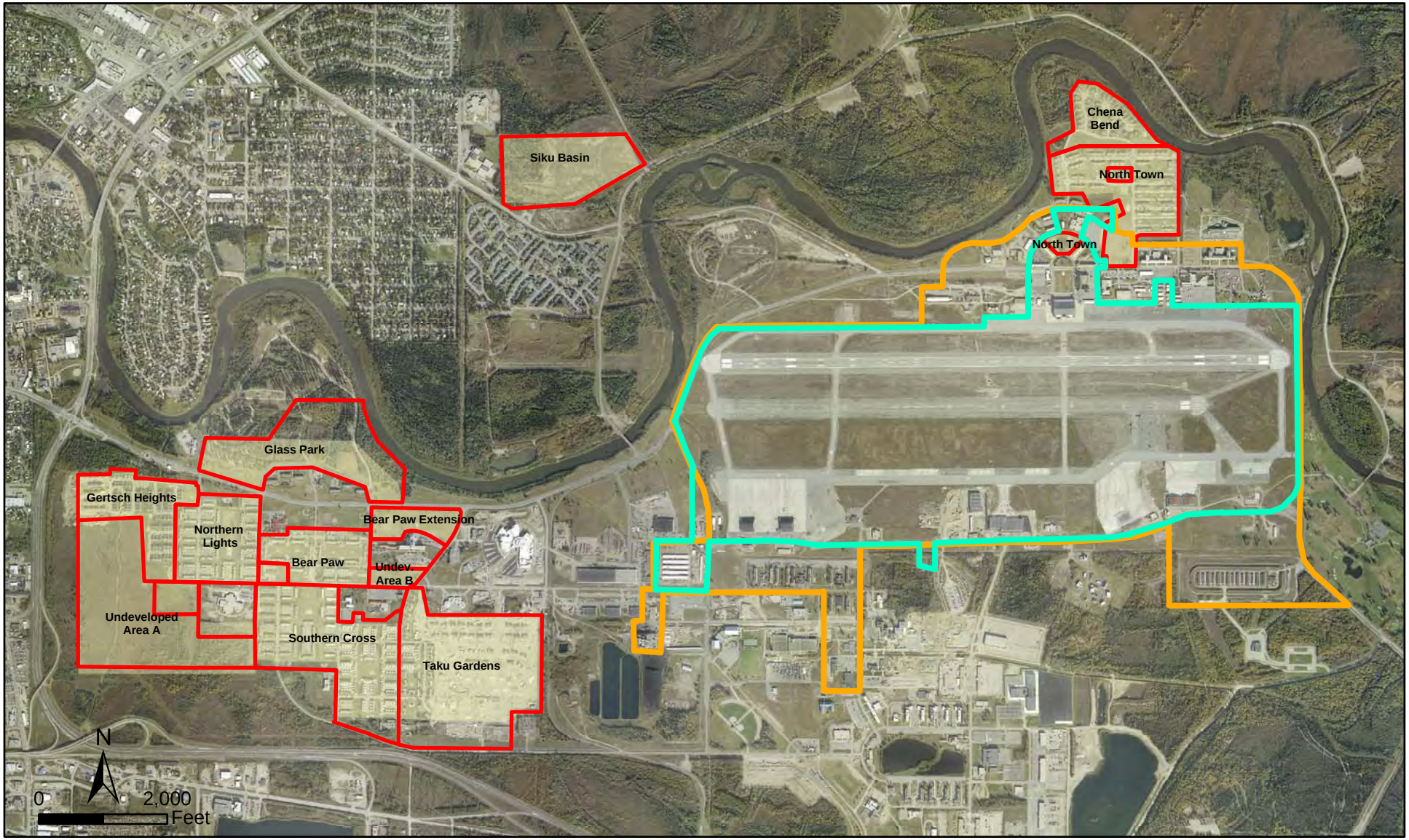
Ladd Field expanded to the modern boundaries of Fort Wainwright by withdrawing unclaimed public land, patented and unperfected homesteads, and subdivided properties (Price 2002). Over the years, Ladd Field and Fort Wainwright have supported a variety of missions pertinent to US military activities. These have included cold weather testing, World War II activities, including an air depot and a stop along the Alaska-Siberia Lend-Lease Program route, and Cold War activities. It was in this military context that the Ladd Field NHL and NRHP-eligible Cold War Historic District, both discussed below, were created.

4.8.1.3 Status of Cultural Resource Inventories and Section 106 Consultations

There are no archaeological resources of significance, Traditional Cultural Properties (TCPs), or other Native American resources currently identified within the RCI APE, which is defined for this project as the RCI footprint (Thornton 2007, 2008). Several cultural resources surveys have been conducted within or near the RCI APE, although none were conducted for this project; therefore, cultural resources and cultural resources surveys referenced in this section are from previous compliance projects or resources discovered and recorded during the course of other activities. Previous cultural resource surveys did not reveal significant archaeological resources on or near the RCI APE. There are three undeveloped or vacant parcels within the APE: a 90.35-acre area southwest of South Post housing (Undeveloped Area A), a 4.58-acre area south of old Bassett Hospital and north of Neely Road (Undeveloped Area B), and an 11.55-acre parcel to the west of the modern hospital (Undeveloped Area C). These parcels have not been surveyed for the presence of cultural resources, but large portions have been graded and cleared. There are no records that indicate that cultural resources were found during this clearing (Thornton 2007, 2008).

Most of the RCI APE is outside the boundaries of the Ladd AFB Cold War Historic District, a Cold War-era historic district that has been determined eligible for the NRHP.

As shown in Figure 4-3, the RCI APE encompasses a portion of the Ladd Field NHL and the Cold War Historic District (assumed to be eligible for the NRHP). Building 1048, also known as Quarters 1, is included in the RCI APE for this project and contributes to the Historic District and NHL. Building 1048 is a historic housing unit that was constructed in 1941 and is the only



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National Historic Landmark and Historic District

Fort Wainwright, Alaska

Legend

- RCI Property
- Ladd AFB Cold War Historic District
- Ladd Field NHL

TETRA TECH

Figure 4-3

cultural resource of concern for this project because no other resources have been recorded within or near the RCI APE (Thornton 2007, 2008). A description of the relevant historic resources is the focus of this discussion.

Ladd Field NHL. Building 1048 is within the Ladd Field NHL, which was established in 1985 in recognition of its World War II contributions. Designed as a small permanent cold weather testing facility, the "original facilities included a 5,000-foot concrete runway and aircraft parking apron, nine administration and housing buildings, six technical buildings, a medical corps building, and tactical fuel storage" (Price 2004). The Ladd Field NHL "includes the airfield; horseshoe-shaped command, industrial, and flight service facilities (known as North Post) located north of the airfield [where Building 1048 is located]. Perimeter buildings on the south side of the airfield include hangars, maintenance shops, warehouses, and an ammunition storage facility (igloo)" (Buzzell 2000). Ladd Field meets Criteria A of the NRHP and "is nationally significant for its association with the themes of expanding science and technology and the changing role of the United States in the world" (Buzzell 2000). The period of significance for the Ladd Field NHL extends from the initiation of operations at the installation in 1940 to the end of World War II in 1945. During that time, a variety of wartime activities took place at Ladd Field, including three that have contributed to its national significance: its role as a cold weather test station and as a World War II air depot and its role in the Alaska-Siberia Lend-Lease Program operations. Additional information on the landmark is included in Appendix C.

Ladd AFB Cold War Historic District. Building 1048 also contributes to the Ladd AFB Cold War Historic District. The district represents the significance of Cold War events between 1947 and 1961 at the base (note, however, that the Cold War is considered to have lasted from 1946 and 1989). The technology developed here during that time aided in a mission to map Soviet radar capabilities and to develop countermeasures. The historic district is most of the northeast of the RCI APE; Building 1048 is a contributing structure within the RCI footprint. Additional information on the district is provided in Appendix C.

Armywide Capehart and Wherry-Era Housing National Historic Preservation Act. This act was created in 2002 and provides instructions for Army installations regarding actions necessary to implement the Armywide Capehart and Wherry-Era (1949-1962) Army Family Housing Program Comment. The ACHP issued a program comment for Army Capehart and Wherry-Era family housing, in accordance with 36 CFR Part 800.14 (e) (ACHP 2002). The program comment is a "programmatic compliance mechanism that allows federal agencies to meet [NHPA] compliance requirements through a one-time agency-wide action for an entire category of properties. The Capehart and Wherry Era Family Housing Program Comment applies to all Army family housing, associated structures and landscape features built between 1949 and 1962 (Capehart and Wherry "Era"), at every installation in the United States and its territories" (ACHP 2002). This program comment applies to the Army housing units constructed between 1949 and 1962 within the RCI APE. These buildings are considered NRHP-eligible, but no additional Section 106 consultation is required for the "maintenance and repair; rehabilitation; layaway and mothballing; renovation; demolition; demolition and replacement; and transfer, sale or lease" of these units (ACHP 2002). All of the historic units at Fort Wainwright, except those constructed in 1941 and part of the Ladd Field National Historic Landmark, fall under this program comment and therefore do not require additional Section 106 consultation. Housing units that would become historic between 2009, when the RCI project begins, and the end of the five-year buildout period would also fall under the stipulations of this act.

4.8.2 Consequences

The implementing regulations for NHPA, 36 CFR Part 800, stipulate that an adverse effect on cultural resources is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion on the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that occur later or farther away or that are cumulative.

Adverse effects on historic properties include the following:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within its setting that contribute to its historic significance; or
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.

For the purposes of this EA, impacts on cultural resources are considered significant if prehistoric or historic resources that are potentially eligible for listing or that are formally listed on the NRHP are disturbed or destroyed. Direct impacts are those in which project activities disturb or destroy the integrity of NRHP-listed or -eligible cultural resources. This can include ground-disturbing activities, noise or other vibrations, renovation, or removal. Indirect impacts are those that may occur at a point later in time but that can be reasonably predicted at the time of project implementation.

In addition to demolition, the construction of new buildings could also significantly affect the Ladd Field NHL and the Ladd AFB Cold War Historic District by disrupting the historic setting of those areas. The Secretary of the Interior's Standards for Preservation of Historic Properties states that the "historic character of a property will be retained [during undertakings] and preserved" (Weeks and Grimmer 1995). This includes maintaining historic buildings and the historic relationships between them and the landscape. As such, the setting of a historic district can be considered a contributing element to the qualities that make the district NRHP-eligible, and "removing or relocating historic buildings or landscape features [can destroy] their historic relationship within the setting" (Weeks and Grimmer 1995).

The Army conducted Section 106 consultation with Alaska Native tribes during the quarterly meetings with the Upper Tanana Inter-Tribal Coalition, which has shown no interest in participating further in the Section 106 process; however, the Army regularly provides the Coalition with updates (Thornton 2008a). In accordance with Section 106 of the NHPA, the Army entered into discussions and consultation with the SHPO to identify impacts on the Ladd Field NHL and Ladd AFB Cold War Historic District, which resulted in the creation of the PA.

4.8.2.1 Proposed Action

The proposed action would demolish 685 housing units, renovate 321 units, and construct 524 units. The proposed action could result in direct significant impacts on the Ladd AFB Cold War Historic District and Ladd Field NHL if contributing Building 1048 is renovated. This impact is addressed in the PA where it states that Army Alaska Family Housing "shall have access to and utilize Qualified Staff for the development of rehabilitation plans, to review and screen proposed projects, and work requirements that affect historic properties that are subject to the PA. The Project Owner will ensure that work on all historic properties, including repair, maintenance, and work carried out by outside contractors, will be performed under the oversight of its Qualified Staff. The project owner shall rehabilitate, maintain, manage, and treat historic properties in accordance with the Secretary of the Interior's Standard's for Rehabilitation and Guidelines for Rehabilitating Historic Buildings." Consequently, impacts on Ladd AFB Cold War Historic District and Ladd Field NHL would be minor adverse because these PA stipulations will be applied.

Construction of facilities that do not reflect the historic setting of the Ladd Field NHL or the Ladd AFB Cold War Historic District within the viewshed of the historic properties could have a significant adverse impact on cultural resources. The PA includes review and consultation provisions that address this potential adverse impact. It states that "for each proposed project, other than those constituting Exempt Activities, the Project Owner shall submit project documentation to the CRM. Said documentation shall consist of: a description of the proposed project; photographs of existing conditions; and, as appropriate, sketches/drawings illustrating before and after conditions, and information on planned materials and methods of construction." The PA further states that the project owner "shall submit to the USAG Fort Wainwright any plans for building exteriors of any new construction (and any plans for additions or modifications to the size, scale and/or massing of any existing buildings) proposed to be implemented by or on behalf of the Project Owner after the effective date of this Agreement." The Army's CRM will review the plans and will determine whether the proposed planned building exteriors would have an effect on the Ladd Field NHL and its buffer zone. The buffer zone is at the northeast of the Ladd Field NHL and is depicted in Exhibit 5 of the PA. Army Alaska Family Housing would comply with the Environmental Concerns for Construction and Renovation Projects (see Appendix A), which states that "all projects require review for potential conflicts with cultural resources under Section 106 of the National Historic Preservation Act. This review must be coordinated in advance through the [Fort Wainwright] cultural resources program." The Army would ensure that the design of the proposed facilities would be developed in accordance with the North Post/Ladd Field Distinguishable Area Design Guidelines (US Army 2005b) and would be consistent with the Secretary of the Interior's Standards and Guidelines. Other options include implementing a development layout that locates new buildings and structures away from buildings that contribute to the Ladd Field NHL and Ladd AFB Cold War Historic District, in particular Building 1048. Therefore, impacts on Building 1048 will be reduced to less than significant.

As with all ground-disturbing activities, the potential exists that buried cultural resources, historic or prehistoric, could be encountered, including human remains. The potential for archaeological or prehistoric resources within the two undeveloped parcels is low because the historic record does not contain evidence of farms or homesteads within the undeveloped parcels within the RCI APE (Thornton 2007, 2008). Still, ground disturbance could impact unknown buried cultural resources. Such impacts could be mitigated by implementing the ICRMP's Standard Operating Procedures for Accidental Discovery of Archaeological Materials and compliance with Native American Graves Repatriation Act (US Army 2001). Following the "Post Review of

Unanticipated Discoveries" in Section III, the PA would also mitigate adverse impacts on cultural resources to less than significant.

4.8.2.2 No Action Alternative

No adverse cultural resources effects would occur under the no action alternative. Without any new structures, surfaces, or soil disturbance, the existing conditions would remain unchanged. If historic structures are not maintained and repaired under the no action alternative, historic buildings would eventually deteriorate. Neglect of a historic property could result in the loss of integrity, and the decision not to maintain a historic property is considered an undertaking that requires compliance with Section 106 of the NHPA (US Army 2001).

4.9 SOCIOECONOMICS

4.9.1 Affected Environment

The ROI for this analysis, the FNSB, is the basis against which the social and economic effects of project alternatives are analyzed. The socioeconomic indicators used for this study include regional economic activity, population, housing, quality of life, environmental justice, and the protection of children.

The baseline year for socioeconomic data is 2000, the most recent year for which data on most of the socioeconomic indicators (e.g., population, employment, and housing data) are reasonably available for the project's geographic area. When available, the latest data were used to best characterize the current conditions of the socioeconomic ROI.

4.9.1.1 Regional Economic Activity

Employment. In 2006, the ROI had a civilian labor force of 44,914, about a three percent increase (1,295 people) from 2000. The unemployment rate increased between 2000 and 2006, from 5.8 percent to 9.8 percent (Bureau of Labor Service 2007; US Census Bureau 2000a). Private employment in the ROI accounted for approximately 67 percent of total employment (BEA 2007a). After private employment, the next largest source of jobs in the ROI is the government sector, with 32.5 percent of total employment (BEA 2007a). Military and federal-civilian jobs accounted for 19.5 percent of total employment (BEA 2007a).

The Borough School District and the University of Alaska Fairbanks are the primary public employers. Fort Wainwright has 5,108 Soldiers and 1,188 civilian employees (915 civil service employees and 273 non-appropriated employees) (US Army 2008). Retail services, gold mining, tourism, transportation, medical, and other services are the primary private sector businesses in the ROI. The Fort Knox hard rock gold mine, which produces 1,200 ounces daily, employs 360 permanent year-round workers (DCCED 2007a).

Income. The 2000 ROI per capita personal income (PCPI) was 27,842, about 93.3 percent of the national PCPI of $27,939 (BEA 2007b, 2007c). Between 2000 and 2005, the ROI PCPI increased by 20.5 percent to $33,568 (BEA 20007b).

Population. FNSB is in the heart of interior Alaska and represents the second largest center of population in the state (DCCED 2007a). The constituent communities of the FNSB include College, Eielson AFB, Ester, Fairbanks, Fox, Moose Creek, North Pole, Pleasant Valley, Salcha, and Two Rivers (Ballistic Missile Defense Organization 2000).

In 2000, the ROI's population was 82,840. The Department of Commerce, Community, and Economic Development reports the total population for 2006 was 96,888, approximately 17 percent increase from 2000 (DCCED 2007a).

Fort Wainwright contributes 5,108 Soldiers and 5,798 command-sponsored dependents to the regional population.

4.9.1.2 On- and Off-Post Housing

In 2000, the number of housing units within the ROI was 33,291, with 29,777 occupied units, of which 16,066 were owner occupied.

Based on a housing market analysis conducted for Fort Wainwright, in which the housing market area is considered the east portion of Fairbanks, the average household size declined from 2.61 persons per household in 1990 to 2.56 persons per household in 2000 (Department of the Army 2005). Within this housing market area, the number of occupied units increased from 17,610 units in 1990 to an estimated 19,757 units in 2005 (Department of the Army 2005).

There are currently an estimated 8,710 renter-occupied housing units in the housing market area, representing about 44.1 percent of the occupied housing stock in 2005. The renter-occupied share is down from historic levels (Department of the Army 2005).

Total construction permit activity within the housing market area peaked in 2004 at 331 units. Multifamily unit development also peaked in 2004, with 129 units permitted. The housing market analysis assumed that the unusually large number of permits issued in 2004 will lead to a gradual increase in housing units completed by 2010 (Department of the Army 2005).

Vacancy rates for apartments in the FNSB fluctuate from 9.3 percent for one-bedroom units to 12.5 percent for four-bedroom units. Single-family homes have demonstrated lower vacancy rates, ranging from no vacancies for four-bedroom units to 9.9 percent for two-bedroom units. In 2005, the Alaska Department of Labor and Workforce Development projected the area population to grow 0.8 percent per year through 2010, resulting in an additional 2,106 off-post residents within the Fort Wainwright market area. However, because of the realignment of Eielson AFB, 25 miles southeast of Fort Wainwright, there is an expected substantial reduction in the on-base population at Eielson AFB. This could have possible indirect population effects in the communities surrounding Eielson AFB (Department of the Army 2005).

With respect to the quality of the off-post housing units, an estimated 21.1 percent of the rental housing stock in the market area was constructed prior to 1960 and therefore is approaching 50 years of age (Department of the Army 2005).

4.9.1.3 Quality of Life

Schools. There are 34 schools within the ROI, including 17 elementary schools, 4 middle schools, and 4 senior schools. Schools within the ROI also include technical and charter schools and schools with alternative programs. The total enrollment is 14,103 students, with 7,552 students in elementary schools, 2,102 students in middle schools, and 4,449 students in high schools (Fairbanks North Star Borough School District 2008).

Health Care. In Fairbanks, there is one hospital and one community health care center. The Fairbanks Memorial Hospital has 152 licensed beds. The Denali Health Care Center is collocated with the Fairbanks Memorial Hospital and has 92 beds for short- and long-term care. The state-certified health care centers in the area are qualified acute care facilities. Emergency services have highway, airport, and floatplane access. Bassett Army Community Hospital on Fort Wainwright has 32 beds (The Agape Center 2008).

Local Services and Facilities. In Fairbanks, there is a police department and a state trooper post for law enforcement. The police department in Fairbanks has an authorized strength of 47, which

includes 44 sworn officers and three civilian support personnel. The department has an Emergency Communication Center with an authorized strength of 16, including a manager and 15 dispatchers (City of Fairbanks 2008).

Fire services are in Fairbanks and on Fort Wainwright (DCCED 2007b). The Fairbanks Fire Department has a staff of 40 persons. The department is equipped with four fire engines, one 100-foot platform, a 102-foot reserve platform, a medium rescue truck, four ambulances, one incident command van, one rescue boat, one raft, one heat trailer, one light trailer, and a technical rescue trailer (Fairbanks Fire Department 2007).

Family Support and Recreation. There is a family support unit at Fort Wainwright that delivers family programs to active duty mobilized National Guard and US Army Reserve Soldiers and families. As part of the family support unit, the US Army Family Morale Welfare and Recreation Program provides recreational events for Soldiers and their families. The program also provides equipment rental for water activities and camping. Soldiers can recreate throughout the FNSB, as well as on those Fort Wainwright lands that are not close to the training areas (Garron 2008). Further, the US Army Child and Youth Services offers recreation and care programs for children at Fort Wainwright, including child care assistance, recreation programs for middle school youth and teens, and sports programs for children between 4 years and 18 years of age. There are several recreation and leisure activities at Fort Wainwright, such as a bowling center, golf course, physical fitness center, community center, art and craft center, and ski and snowboarding area. The installation also organizes outdoor activities, such as hill walking, trekking, canoeing, kayaking, climbing, caving, and water and snow sports (Fort Wainwright 2007).

4.9.1.4 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to address Environmental Justice in Minority and Low-Income Populations. Environmental justice is analyzed to identify potential disproportionately high and adverse impacts on minority and low-income populations from proposed actions and to identify alternatives that might mitigate the impacts.

As presented in Table 4-8, the ROI has fewer individuals than in Fairbanks alone or in Alaska reporting to be American Indian and Alaska Native, Asian, or Native Hawaiian and Other Pacific Islander. The ROI has a higher percentage of white population than in Fairbanks alone or in Alaska. The percentage of American Indian and Alaska Native is higher in Fairbanks (9.9 percent) alone, compared to the ROI area (6.9 percent). The ROI has the lowest percentage of people living below the poverty line than Fairbanks or Alaska.

Each year, the US Census Bureau defines the level of poverty following the Office of Management and Budget's Statistical Policy Directive 14. The US Census Bureau uses a set of money income thresholds that vary by family size and composition to determine the line of poverty. If a family's total income is less than the family threshold, then that family and every individual in it is considered in poverty. The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (US Census Bureau 2008). The poverty levels for individuals, defined by the US Census Bureau were $6,652 for 1990 and $8,791 for 2000. The family poverty levels vary depending on household characteristics; each person or family is assigned one out of 48 possible poverty thresholds, depending on the size of the family and ages of the family members. The ROI population below the poverty level was 18.9 percent in 2000, higher than that of 1990, which was 14.1 percent (DCCED 2007a).

Table 4-8
Race, Ethnicity, and Poverty Status for Fort Greely, Southeast Fairbanks Census Area, and the Unites States (2000)

	Fairbanks	Fairbanks North Star Borough	Alaska
White	66.7%	77.8%	69.3%
Black or African American	11.1%	5.8%	3.5%
American Indian and Alaska Native	9.9%	6.9%	15.6%
Asian	2.7%	2.1%	4.0%
Native Hawaiian and Other Pacific Islander	0.5%	0.3%	0.5%
Hispanic or Latino*	6.1%	4.2%	4.1%
Other	2.4%	1.7%	1.6%
Two or more races	6.5%	5.4%	5.4%
Persons living in poverty	10.5%	7.8%	9.4%

Source: DCCED 2007c, 2007d, 2007e; US Census 2000b, 2000c;
*Persons of Hispanic Origin may be of any race

4.9.1.5 Protection of Children

Executive Order 13045 seeks to protect children from disproportionately incurring environmental health or safety risks that might arise as a result of Army policies, programs, activities, and standards. In 2000, 20,917 children under the age of 14 were living in the ROI (US Census Bureau 2000b).

4.9.2 Consequences

Implementation of the proposed action could result in the following impacts on the ROI:

- Reductions or increases in sales volume, employment, income, and population;
- Reduction or increases in government revenues;
- Population increases that exceed the capacity of local schools;
- Changes in government revenues that could affect schools;
- Disproportionate effects on low-income or minority populations; and
- Increased risk to the safety of children during construction.

4.9.2.1 Proposed Action

Regional Economic Activity. The project would result in minor short-term beneficial impacts on the ROI economy. The proposed action would slightly increase employment and regional spending during demolition and construction. There would be no impacts on the ROI population. The proposed action would not result in an increase in civilian or military personnel, and there

would be no change in the long-term residential population at Fort Wainwright. There would be no long-term impacts on regional economic activity.

Housing. Minor beneficial effects on Fort Wainwright family housing and ROI housing are expected. The availability of affordable quality housing in family-oriented communities is a key issue for Army recruiting and retention. Further, with 21.1 percent of the rental housing stock in the market area approaching 50 years of age, the importance of rehabilitating on-post housing is paramount. Compared to the current housing inventory, the RCI proposed action would result in a 9.7 percent increase in the number of housing units.

Quality of Life. Minor beneficial effects are expected. The overall quality of life for Soldiers and their families at Fort Wainwright would be improved by implementing the RCI program because of the improved condition of on-post family housing, as well as the overall residential community. The RCI program would improve the condition and aesthetic appeal of family housing through revitalizing existing units and constructing new units. The new community center would enhance the quality and quantity of recreation opportunities for on-post residents. The center would be strategically located to enhance the sense of community. Because the proposed action would not change the residential population, there would no change in the demand for schools, law enforcement, fire protection, and health services in the ROI. While community services such as police and fire services are not well distributed throughout the ROI, the RCI program would provide housing in the areas covered by those services.

Environmental Justice. No effects are expected. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations from implementing the proposed action. Because the RCI project occurs within the cantonment area of Fort Wainwright, where there are no minority or low-income populations, no direct effects would occur.

Protection of Children. Short-term minor adverse and long-term minor beneficial effects on protection of children are expected. In the short term, construction sites at Fort Wainwright could pose a potential safety hazard to children. During construction, safety measures would be followed to protect the health and safety of residents, including children. Barriers could be placed around construction sites to deter children from entering.

Long-term beneficial impacts are expected due to a reduction in exposure to hazardous materials that may be present in the old housing. Hazardous materials identified in Fort Wainwright family housing units would be removed or encapsulated during renovation or demolition. Construction would achieve the gold rating of the SPiRit process, which assesses the degree building designers successfully incorporate such matters as indoor air quality. Further, as detailed in Section 4.12, soil and groundwater on portions of the RCI footprint are contaminated with petroleum products, pesticides, solvents, and PCBs. In accordance with the FFA, the Army, in coordination with the ADEC and the EPA will perform remedial actions necessary for the property to be safe for residential use and to establish institutional and land use controls. These controls would preclude the possibility of detriment to human health and the environment and would eliminate the possibility of dangerous exposure, even if contamination exists. Portions of active remediation sites where residents, particularly children, could come in contact with contaminants would be fenced or otherwise controlled to prevent access and exposure. Additionally, as detailed in Section 4.12, elevated lead concentrations may be present in soil within the RCI footprint. The Army would conduct a comprehensive survey of lead levels in soil and would implement appropriate abatement measures. Therefore, implementation of the proposed action would have beneficial long-term impacts on protection of children.

4.9.2.2 No Action Alternative

Regional Economic Activity. No effects are expected. There would be no change in sales volume or employment in the ROI and no change in population as a result of implementing the no action alternative.

Housing and Quality of Life. Long-term minor adverse effects are expected. Continuation of family housing programs as they are at present would perpetuate deficiencies in quality of life for many Soldiers and their dependents. The Army would continue to do regular maintenance on existing housing, as well as some renovation and demolition, Based on historical trends, the assumption is that the amount of congressional funding for family housing would not change and that the housing maintenance backlog would continue to increase. This would further decrease the inventory of family housing on the affected installations, forcing military employees and their families to find off-post housing.

Environmental Justice. No effects are expected. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations as a result of implementing the no action alternative.

Protection of Children. Long-term minor adverse effects on the protection of children are expected. As homes deteriorate, the risk of children being exposed to hazardous materials (for example, from chipping lead-based paint or asbestos from cracked asbestos tiles) would increase.

4.10 TRANSPORTATION

This section presents a description of the baseline conditions for the transportation system serving Fort Wainwright. It also provides an evaluation of the potential environmental impacts on the transportation system from implementing the proposed action, as compared to the no action alternative.

4.10.1 Affected Environment

4.10.1.1 Roadways and Traffic

Access to Fort Wainwright and within the Main Post is provided by state and local roads, railway main lines and spurs, the Ladd Army Airfield, and Fairbanks International Airport. The ROI evaluated in this EA for potential traffic and transportation impacts includes those state and local roads providing access to the Main Post and the main roads within the Fort Wainwright cantonment area.

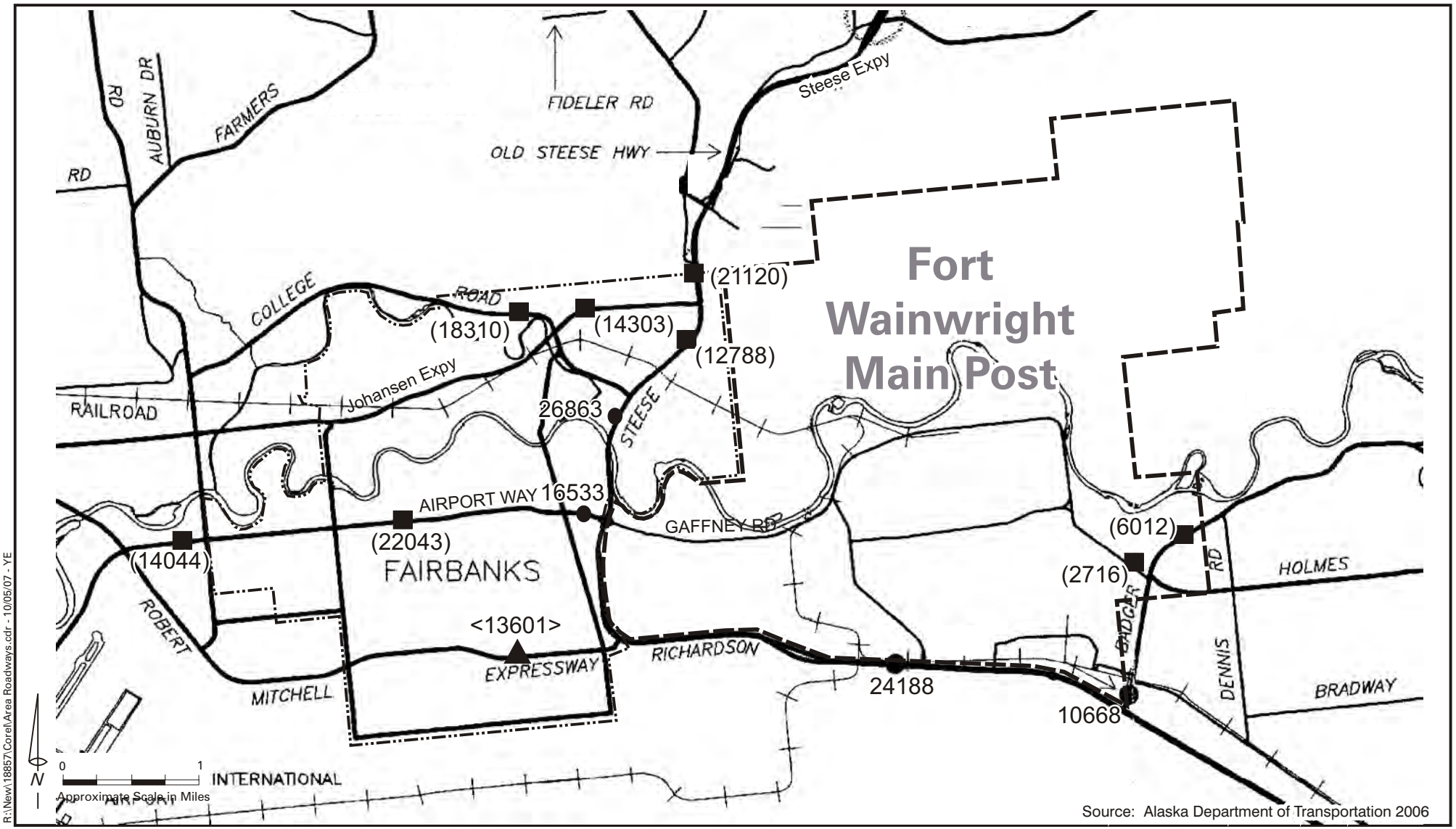
Area Roadways. The major state and local roads serving Fairbanks and the Main Post include Richardson Highway, Parks Highway, and the Steese Expressway (Figure 4-4).

Within Fairbanks, Airport Way is the main east-west arterial accessing the Main Post. At its eastern terminus, Airport Way enters the cantonment area through the Main Gate, becoming Gaffney Road. On the west side of Fairbanks, near the Fairbanks International Airport, Airport Way connects to the Fairbanks International Airport and the Parks Highway. College Road and the Johansen Expressway/Geist Road also provide major east-west access to the Main Post through north Fairbanks. Traffic levels on Airport Way, Richardson Highway, and Steese Expressway are generally moderate. However, noticeably heavier traffic during peak hours and the summer tourist season can cause congestion at major arterial intersections (ADOT 2005). Peak hours for Fairbanks (and Fort Wainwright) are typically 7:00 to 9:00 AM, 12:00 to 2:00 PM, and 4:00 to 6:00 PM. The average daily traffic counts (ADT) for major intersections in the ROI, recorded in 2005, are included in Figure 4-4.

Main Post Roadways. Main roads within the Fort Wainwright Main Post are shown on Figure 4-5. The Main Post contains approximately 30 miles of paved roads and 10 miles of gravel/clay unpaved roads. All of the paved and unpaved roads serving the Main Post are in good condition. Graveled roads serve facilities such as the landfill, tank farm, northeast ammunition storage area, and training areas. Adequate parking exists in all active areas of the Main Post.

There are three gates providing access to the Main Post, including Main Gate on Gaffney Road, the terminus of Airport Way; Trainor Gate, about one mile north of the Main Gate off of the Steese Highway; and Badger Gate, to the east, on Badger Road, just north of the Richardson Highway.

Traffic along roadways and at intersections on the Main Post is generally moderate, although noticeable congestion occurs on portions of some main roads and at some main intersections during peak hours. Table 4-9 lists portions of roadways and intersections on the Main Post that can become congested during peak hours.



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Primary roadways in Fairbanks generally operate at LOS C.

LEGEND:

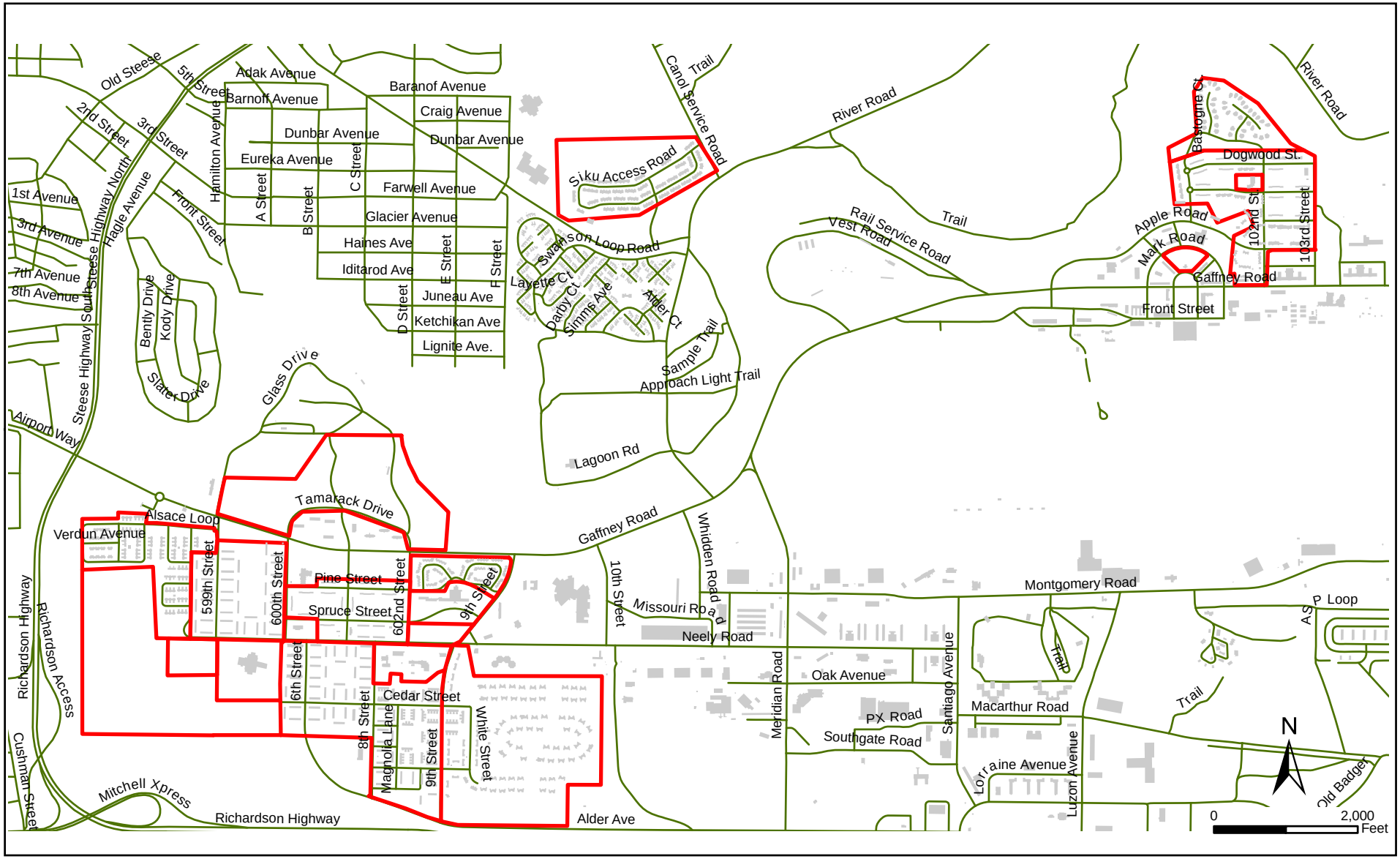
- Main Post Boundary
- (2005 counts)
- <Estimated>
- Permanent Counter

TETRA TECH

Area Roadways

Fort Wainwright, Alaska

Figure 4-4



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Roadways within the Fort Wainwright Main Post

Legend

- Building Structures
- Roads
- RCI Property

TETRA TECH

Fort Wainwright, Alaska

Figure 4-5

Table 4-9
Roadway Portions and Intersections on Main Post Where Peak Hour Congestion Can Occur

Roadways	Intersections
Gaffney Road, between main gate and North Post	Neely Road and Meridian Road
Neely Road, between Santiago Avenue and 9th Street	Neely Road and 10th Street
Montgomery Road, along east and south sides of airfield	Gaffney Road and 9th Street
Santiago Avenue, between Montgomery and Rhineland	Gaffney Road and 10th Street
Meridian Road, between Neely Road and Gaffney Road	Gaffney Road and Whidden Road
	Montgomery Road and Meridian Road
	Montgomery Road and Santiago Avenue
	Neely Road and Santiago Avenue

Source: Tetra Tech observations on July 26, 2007.

In 2006, USKH performed a traffic study on the Main Post for Fort Wainwright Directorate of Public Works (DPW) (USKH 2006). The study included an analysis of current AM and PM peak hour traffic conditions and an analysis of forecasted traffic conditions for the next six years. The forecasts assumed full development and occupancy of planned facilities, as well as the anticipated intermittent return of personnel from abroad. The results of the analysis in the draft report indicated that all intersections on Main Post currently operate at or above accepted DPW standards and that significant traffic increases would result from full occupancy and build-out of planned facilities and returning troops. Eleven roadway and intersection improvements were recommended in the draft report, and these improvements are expected to bring future forecasted traffic conditions within compliance with DPW and national industry standards (USKH 2006).

4.10.1.2 Railway Transportation

The Alaska Railroad (AKRR) provides seasonal passenger and year-round freight and vehicle service between Anchorage and Fairbanks (US Army 2002), which is the railroad's northern terminus (US Army 2005). The AKRR main line serving Fairbanks and the Main Post crosses the city north of the Chena River (Figure 4-5) and enters the Main Post, paralleling Trainor Road at Trainor Gate. It crosses the Chena River, provides loops and spurs to the South Post industrial area and to the North Post warehouse area (Figure 4-5), and connects to the Fairbanks industrial spur. The railroad provides freight service to Fort Wainwright for ammunition, household goods, and fuel. The spur to Fort Wainwright does not provide passenger service.

4.10.1.3 Air Transportation

Ladd Army Airfield in the central area of Main Post has two parallel runways, the 8,552-foot north runway and the 7,800-foot south runway, which is used only when the north runway is closed for maintenance. The airfield can support the range of military aircraft, including C-5s (US Army 2005).

The Class B airfield is used primarily by Aviation Task Force 49. Helicopters are the main type of aircraft using the airfield, with occasional fixed-wing aircraft usage. The BLM also uses the airfield for fire protection throughout Alaska (White 2007).

Fairbanks International Airport, five miles west of the Main Post on Airport Way, is the nearest commercial airport. The airport has an 11,800-foot main runway, a 6,500-foot secondary runway, a 3,500-foot winter (ski) graveled runway, and a 5,400-foot water lane (float plane) runway (US Army 2005a). The airport can handle up to a Boeing 747-400, although the most commonly used large aircraft is the Boeing 757. Fairbanks International Airport also coordinates operations with the Fort Wainwright control tower and air operations management.

A number of major airlines provide year-round daily passenger service, while others provide mainly summer tourist service. Several air cargo carriers operate year-round daily service. The airport also provides parking facilities and airspace management for a variety of local privately owned fixed-wing and rotary-wing aircraft.

4.10.2 Consequences

Potential transportation impacts from the proposed action would be significant if (a) traffic were to increase substantially, such that it exceeded existing and planned capacities of the roadways serving Main Post, resulting in unmanageable and prolonged delays and congestion at intersections; or (b) there were substantial risks to pedestrians in affected neighborhoods from project-related vehicles and equipment that could not be adequately reduced through best management practices.

4.10.2.1 Proposed Action

The proposed action involves renovating 321 residential units, demolishing 685 residential units, and constructing 524 new residential units within seven of the ten neighborhoods on Main Post that make up the RCI footprint (See Figure 2-1). The seven affected communities include Gertsch Heights, Southern Cross, Northern Lights, Bear Paw, North Town, Chena Bend, and Taku Gardens. Development would occur within a five-year period.

During the construction, demolition, and renovation activities, truck and construction-related vehicle traffic is expected to increase on some of the roadways serving Main Post and local housing communities. Although a roadway routing plan has not yet been developed that would control which roads could be used by construction- and demolition-related vehicles during the development period, the assumption is that the Main Gate at Gaffney Road would continue to be the primary access point to Main Post. A further assumption is that RCI construction- and demolition-related vehicles would use the main and secondary roads presently serving Main Post and local roads presently serving the affected community areas. Table 4-10 lists the main and local roadways likely to be used by such vehicles.

Most demolition and construction would take place from April to November of 2010, 2011, and 2012, within the adjacent neighborhoods of Gertsch Heights, Northern Lights, Bear Paw, Southern Cross, and Taku Gardens. During this development period, it is likely that the greatest increases of development-related traffic would occur on the main and local roads presently serving these five neighborhoods. Those roadways likely to experience the largest increases in traffic during these three peak development period are listed in Table 4-11.

Table 4-10
Existing Main and Local Roadways Likely to be Used by Construction- and Demolition-Related Vehicles and Equipment During RCI Development

Roadway	Type	Community / Area Served
Gaffney Road	Primary	Main Post
Neely Road	Primary	South Post
Trainor Road	Primary	North Post
River Road	Primary	North Post
9th Street	Primary	South Post
10th Street	Primary	South Post
Meridian Road	Primary	South Post
Glass Drive	Local	Denali
Tamarack Drive	Local	Denali
599th Street	Local	Gertsch Heights, Northern Lights
Alsace Loop	Local	Gertsch Heights
Verdun Avenue	Local	Gertsch Heights
600th Street	Local	Northern Lights, Bear Paw, Southern Cross
Pine Street	Local	Bear Paw
Spruce Street	Local	Bear Paw
602nd Street	Local	Bear Paw, Southern Cross, Taku Gardens
6th Street	Local	Southern Cross
8th Street	Local	Southern Cross
Magnolia Lane	Local	Southern Cross
Cedar Street	Local	Southern Cross, Taku Gardens
Canol Service Road	Local	Siku Basin
Siku Access Road	Local	Siku Basin
Apple Road	Local	North Town, Chena Bend
Mark Road	Local	North Town
102nd Street	Local	North Town, Chena Bend
103rd Street	Local	North Town, Chena Bend
Dogwood Street	Local	North Town, Chena Bend
Bastogne Court	Local	Chena Bend

Table 4-11
Existing Main and Local Roadways Likely to Receive the Greatest Increases in Traffic During the Three RCI Peak Development Years (2010-2012)

Roadway	Type	Community / Area Served
Gaffney Road	Primary	Main Post
Neely Road	Primary	South Post
9th Street	Primary	South Post
10th Street	Primary	South Post
Meridian Road	Primary	South Post
599th Street	Local	Gertsch Heights, Northern Lights
600th Street	Local	Northern Lights, Bear Paw, Southern Cross
Pine Street	Local	Bear Paw
Spruce Street	Local	Bear Paw
602nd Street	Local	Bear Paw, Southern Cross, Taku Gardens
6th Street	Local	Southern Cross
8th Street	Local	Southern Cross
Magnolia Lane	Local	Southern Cross
Cedar Street	Local	Southern Cross, Taku Gardens

Because the actual routes to be taken by residents, development-related vehicles, and others is discretionary, it is not possible to accurately predict the level of traffic increases on particular roadways during the RCI development period. However, the overall impacts of RCI development-related traffic on affected roadways are expected to be minor, based on the following assumptions:

- The roadway and intersection improvements called for in the 2006 Fort Wainwright Traffic Study would be implemented during 2006-2012, as recommended in the study;
- RCI demolition- and construction-related traffic would be intermittent;
- The multiple construction and demolition sites comprising the RCI footprint are fairly spread out on Main Post;
- The development-related traffic increases would be of relatively short duration;
- It is likely that multiple travel routes would be used for development-related vehicles; and
- Alternate Main Post access gates and routes would be available if required.

To help ensure that development-related traffic impacts would be minor, traffic levels on affected roadways and delays at affected intersections should be monitored. Also, appropriate actions should be taken regarding development-related traffic, such as requiring development-related vehicles to use alternate access gates, designated travel routes, and off-peak travel times.

In those neighborhoods where development-related vehicle routes may pass through or near residential areas where children may be at play, the risk to children and other pedestrians is considered moderate to high because of the narrow streets in the residential areas and the potential for children to be distracted by play activities.

To help reduce these risks to minor adverse and minimize the potential for pedestrian and vehicle accidents and to maximize safety and awareness for those in the affected community areas, the following mitigation measures are recommended:

- Alerting residents when construction- and demolition-related activity and traffic are planned to be in their areas, including distributing and posting construction and demolition schedules;
- Requiring construction and demolition vehicles to use flashing lights and possibly auditory warning devices when traveling through areas where children are present;
- Stationing crossing guards at selected intersections and play areas at certain times to adequately safeguard children and others; and
- Preparing and distributing a comprehensive traffic routing and pedestrian protection plan before demolition and construction begin in the neighborhoods. The plan preparation would include input and representation from residents in the affected communities and other knowledgeable personnel from Fort Wainwright.

4.10.2.2 No Action Alternative

Under the no action alternative, the Army would remain responsible to provide and oversee the housing inventory on Main Post. Use of the various roads available to the residential areas and other facilities on Main Post and the service levels of these roads would continue as at present and as planned for the foreseeable future. The existing capacities and planned improvements of the roadway systems serving Main Post are anticipated to be sufficient to sustain the existing and foreseeable residential levels in the housing areas at the existing levels of service.

4.11 UTILITIES

This section presents a description of the baseline conditions for the various utility systems at Fort Wainwright. It also provides an evaluation of the potential environmental impacts on the utility systems from implementing the proposed action, as compared to the no action alternative.

Based on a successful competitive proposal in response to Request for Proposals SP0600-05-R-0024 with Amendments 0001 – 0010, Doyon Utilities, LLC (Doyon), on August 15, 2008, assumed ownership, operations, and maintenance of the Central Heating and Power Plant (CHPP) and the heat distribution, electrical distribution, potable water distribution and wastewater collection utility systems and infrastructure at Fort Wainwright. Under a 50-year contract with the Army, Doyon will furnish all necessary labor, management, supervision, permits, equipment, supplies, materials, transportation, and any other incidental services required for the complete ownership, operation, maintenance, repair, upgrade, and improvement of these utility systems.

The following relevant stipulations have been paraphrased from the *Utilities Contract* (US Army 2008) between the Army and Doyon regarding the operations, maintenance, repair, replacement, and upgrading of the utilities systems now under the responsibility of Doyon:

- Doyon will manage, control, and perform operations, maintenance, repairs, replacements, expansions, and incidentals on its utility systems so as to provide reliable and dependable utility service to each government or tenant connection within the service area;
- Doyon will be responsible for providing capital investments and all other resources required to own, maintain, and operate its utility system(s) in a safe and reliable condition;
- Doyon will obtain and maintain current any and all licenses, permits, or certifications necessary to own, maintain, and operate its utility systems;
- Doyon will perform its required services in accordance with industry-standard construction, operations, maintenance, management, environmental, safety, and other relevant standards, that apply to similarly-situated utility service providers serving customers whose service characteristics are comparable to the service characteristics of Fort Wainwright;
- Doyon will comply with all applicable federal, state, and local laws/regulations and installation-specific requirements in performing its duties under the contract;
- Doyon will strive to provide energy- and water-efficient systems, and will take no action that will negatively impact established water-saving and energy-saving and conservation projects and programs without prior approval of the Army;
- The Army retains the right to procure or supply electricity and water that will be transported on the systems owned and operated by Doyon from any lawful source;
- Doyon will comply with requests from the installation regarding the placement of new or renewal utility systems either overhead or underground;
- Doyon may be permitted to either build or lease office space, maintenance shops, materials storage/staging areas or other facilities on the installation;

- New construction or remodeling of existing facilities undertaken by Doyon will comply with Fort Wainwright's architectural standards and be fully coordinated with the installation prior to beginning construction;
- Doyon will comply with applicable environmental laws and regulations including installation-specific requirements;
- Doyon will comply with the installation procedures and standards for work in and around environmentally sensitive or contaminated property. Prior to accessing any environmentally sensitive areas Doyon will coordinate with designated Army representatives;
- Modification of the utility systems on Fort Wainwright may require an environmental impact assessment in accordance with the environmental impact analysis process applicable to the installation. Doyon will be responsible for preparing all documents necessary for conducting this assessment in coordination with the Army;
- Doyon will be responsible for accomplishing all required upgrades, renewals, and replacements to maintain and operate the utility systems in a safe, reliable condition; and
- Doyon will prepare and submit an annual capital upgrades and renewals and replacements plan that identifies capital upgrades and major renewals and replacements Doyon intends to accomplish. Each annual plan will contain a proposed upgrade list for each of the next five years.

4.11.1 Affected Environment

4.11.1.1 Potable Water Supply and Fire Protection

Two wells in Building 3559 make up the main potable water supply, and together they produce up to 4.9 million gallons per day (MGD). The highest average daily potable water demand (during summer) is approximately 2.7 MGD (Davenport 2007). Seven additional groundwater wells are used to augment potable water supply on the Main Post and provide water for other uses, including fire protection. With all nine wells, the overall combined supply is up to 9.3 MGD. Water from the seven supplementary wells is treated only with chlorine, and these wells are used mainly to supply potable water in emergencies. Potable water for general use is stored in a 325,000-gallon concrete tank.

The water treatment plant serving Main Post is housed in Building 3565. The potable water treatment plant has a hydraulic capacity of 3.5 MGD. At times during the summer, the peak water use can exceed the treatment plant's capacity to produce high quality water; when this occurs, the additional demand is met by adding unfiltered chlorinated water (Davenport 2007).

Treated water is distributed to Main Post buildings and hydrants through the network of utilidors (underground utility corridors). The residual heat from the steam lines that are collocated in the utilidor system prevents the water distribution lines from freezing during the winter. The Birchwood Housing development (formerly called 801 Housing) is not on the potable water distribution system, but is instead connected to the Fairbanks water system.

Fire protection for the Fort Wainwright Main Post is provided through a network of about 350 hydrants distributed throughout the area, with water supplied from the system of wells described above (Davenport 2007).

4.11.1.2 Sanitary Wastewater Management

Sanitary wastewater generated on Main Post is collected by a system of gravity lines and lift stations, and is conveyed through a 24-inch force main to the Fairbanks wastewater treatment plant, owned and operated by Golden Heart Utilities. The Birchwood Housing development (formerly called 801 Housing) is not on the Main Post collection system, and is directly connected to the Fairbanks sanitary wastewater system. The Main Post produces about 1.25 MGD of sanitary wastewater during winter and 2 MGD during summer. The hydraulic capacity of the Main Post wastewater collection system is 2.5 MGD, and the design capacity of the 24-inch conveyance main is 2.0 MGD (Davenport 2007).

4.11.1.3 Stormwater System

There are no underground storm drainage lines on Fort Wainwright. Stormwater runoff is managed by a series of shallow ditches and swales throughout the Main Post. The low-gradient system of ditches and swales promotes infiltration, generally following natural drainage courses to the Chena and Tanana Rivers. During spring, water can collect in low areas, as the ground remains seasonally frozen. As temperatures rise and the ground thaws, the collected water will seep into the soil.

4.11.1.4 Energy

Electrical Power. Electrical power requirements on the Main Post are met primarily by electricity generated at the CHPP in Building 3595. The CHPP houses four 5.0-megawatt (MW) coal-fired steam-driven turbine generators. Process water in the CHPP is cooled by air-cooled condensers. Supplemental electrical power is available as needed on-post through a tie provided by the Golden Valley Electric Association, a nonprofit cooperative in North Pole, Alaska. The current annual power requirements on Main Post range from a high of 18 MW during winter, to a low of 10 MW during summer (Davenport 2007).

Power generated at the CHPP is distributed to Main Post facilities on 10 radial three-phase circuits, with conductors primarily carried on overhead poles. The North Post area is served by three main circuits and the South Post area (including family housing) is also served by four different circuits (Davenport 2007).

In addition to the eight-circuit grid, 15 buildings on the Main Post have standby engine generator units that can augment electrical power supplies. The standby generators have design capacities ranging between 10 kilowatts (kW) and 400 kW (Davenport 2007).

Within the next five years, beginning in 2008, Doyon plans to upgrade and increase the capacity of the electrical system serving Fort Wainwright. A new substation is planned to be completed in summer 2009, with 50 percent more capacity. All replacement electrical circuits and supply systems planned over the next five years will also be constructed, with 50 percent more capacity (Doyon 2008).

Heating. Heating requirements on the Main Post are met with steam generated at the CHPP, with the steam distributed at 100 pounds-per-square-inch through pipes within the network of underground utilidors and some buried pipelines. The CHPP produces steam using six Wickes coal-fired steam boilers, each rated at 150,000 pounds per hour of steam. Usually, at any one time, four boilers are operating, with one additional boiler kept on standby, and one boiler undergoing a cyclic maintenance program (Davenport 2007).

Distribution of steam within the Main Post is accomplished with four 16-inch main steam lines, three of which connect to a 24-inch main on the east side of the CHPP. The 24-inch main supplies the South Post area, while the fourth 16-inch lateral supplies the North Post area. A network of secondary steam distribution lines ranging from 1 inch to 20 inches in diameter complete the distribution to the South Post and the North Post buildings (Davenport 2007).

4.11.1.5 Communication System

The communication system on the Main Post includes multiband fiber optics and copper wiring throughout most facilities. System upgrades have been deferred in those areas of family housing that are planned for future renovation or replacement and would be installed at the time those actions are undertaken. In the meantime, the older telecommunication wiring in these facilities is fully functional, although it is not able to provide the same reliability or capacity as in the upgraded areas (US Army 2005; White 2007).

4.11.1.6 Solid Waste Management

Municipal solid waste (MSW) on the Main Post is accumulated in local trash receptacles set out near sources of waste. The trash from these receptacles is collected regularly by trucks operated by Shaw, and then hauled to the FNSB landfill. During 2006, the Main Post generated 3,342 tons of MSW (Adams 2007). Capacity remaining in the FNSB landfill is estimated to be 25 years, and the Army plans to continue to use the FNSB landfill into the foreseeable future. No maximum daily capacity has been established for the FNSB landfill (Adams 2007).

Fort Wainwright also operates a landfill on-post for construction and demolition wastes generated on the Main Post (Adams 2007). The landfill, to the north of the North Post area and the Chena River, is operating on a recently renewed permit, which expires in 2010. Based on current generation rates, the Army would likely close the landfill in 2010, unless the State of Alaska allows two more lifts to be added to the landfill, which could prolong its life until 2016 (Adams 2007). In 2006, just over 19,000 tons of construction and demolition debris were disposed of at the landfill, including nearly 2,400 tons of concrete (Adams 2007). If the on-post landfill is closed as of 2010, the installation would likely dispose of construction and demolition waste in the FNSB landfill (Adams 2008). The Fort Wainwright environmental staff is currently making use of old quarry pit sites on Fort Wainwright for disposing of tree grubbing waste and excess clean concrete, but there are only a few such sites remaining (Seibel 2008).

Recycling on the Main Post consists of voluntary collection of recycled office paper and cardboard by participating offices, which is voluntarily hauled to the FNSB landfill for recycling. Cardboard from the commissary and post-exchange are collected, bundled, and periodically hauled to Anchorage for recycling. There is also an aluminum can recycling station at Building 3023. Larger metal waste materials that periodically accumulate on the Main Post are collected by public works personnel and sold to commercial recyclers (Adams 2007).

4.11.2 Consequences

Implementation of the proposed action would result in some reconfiguration of the various neighborhoods on Main Post, with resultant changes in the utility systems serving those neighborhoods. Doyon and Army Alaska Family Housing would coordinate and cooperate on any necessary changes to those systems, including the continued use of Shaw for MSW collection and disposal. Potential impacts associated with implementing the proposed action would be considered significant if the existing and planned capacities of any of the utility systems serving

Fort Wainwright were to be exceeded, requiring substantial upgrading and expansion of those utilities to meet the incremental RCI demand.

4.11.2.1 Proposed Action

The proposed action would have short-term minor adverse and long-term beneficial impacts on utilities. With regard to collecting and disposing of solid waste, Army Alaska Family Housing would coordinate with Fort Wainwright staff as necessary and would continue to have MSW collected by Shaw and disposed of in the FNSB landfill. Construction and demolition wastes generated by RCI implementation would be disposed of in the on-post landfill until it is closed. In the event that the on-post landfill closes during the RCI development period, the assumption is that Army Alaska Family Housing would take the necessary steps to use the FNSB landfill, in accordance with any landfill capacity regulations in place at the time. Because the increase in solid waste would not exceed the capacities of the affected landfills, impacts would be minor adverse.

Because there are sufficient capacities in the utility systems serving Main Post to sustain the existing and foreseeable number of residences, no appreciable impacts on utilities are anticipated. Moreover, because Army Alaska Family Housing strives to achieve a gold rating under the Sustainable Project Rating Tool (SPiRiT) process, and Leadership in Energy and Environmental Design (LEED) H and Five-Star Energy Star Requirements, efficiencies are anticipated in the use of some of the utilities under the RCI project, such as potable water, electricity, and heating. The associated reduction in family housing demand for utilities would have a beneficial impact on those utility systems.

4.11.2.2 No Action Alternative

Under the no action alternative, the Army would remain responsible for the housing inventory on Main Post. With regard to the utilities systems serving the housing and other buildings and facilities on Main Post, the no action alternative would essentially continue existing conditions. Use of the various utilities in the cantonment area would continue as at present and as planned for the foreseeable future, in accordance with the terms of the utilities contract between Fort Wainwright and Doyon. There are sufficient capacities and planned expansions in the utility systems serving Main Post to sustain the existing and foreseeable level of service.

4.12 HAZARDOUS AND TOXIC SUBSTANCES

4.12.1 Affected Environment

Specific environmental statutes and regulations govern hazardous material and hazardous waste management activities at Fort Wainwright. For the purpose of this analysis, the terms hazardous waste, hazardous materials, and toxic substances include those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), or the Toxic Substances Control Act (TSCA). In general, they include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics, may present substantial danger to public health or welfare or the environment when released.

To identify areas where possible storage, release, or disposal of hazardous substances or petroleum products or their derivatives has occurred, the Army, through contractor support, prepared an Environmental Condition of Property (ECP) report of those areas within the RCI footprint. The ECP report also identified any existing non-CERCLA-related environmental or safety issues (e.g., asbestos-containing material [ACM] and lead-based paint [LBP]) that would limit or preclude use of the property for RCI actions. Tetra Tech conducted visual site inspections (VSIs) of representative buildings during preparation of the ECP report. A summary of the findings contained in the ECP have been included in the following sections.

4.12.1.1 Management of Hazardous Materials and Wastes

Fort Wainwright is a large-quantity generator, as defined under RCRA, with EPA identification number AK6210022426 (Gray 2007). Waste streams originate from training, aircraft, vehicles, and maintenance and generally consist of petroleum, oil, and lubricants (POL), solvents, paints, and adhesives (Gray 2007).

The Environmental Resource Office of the Directorate of Public Works oversees the management of hazardous wastes at Fort Wainwright, following guidance provided in US Army Pamphlet 200-1, *Environmental Protection and Enhancement* (US Army 2002). To protect against fire, explosion, spills, threats to health, and other serious consequences of improper hazardous materials/regulated waste management, Pamphlet 200-1 provides strict procedures for identifying, labeling, storing and using hazardous materials/regulated wastes, as well as for training waste management personnel in these procedures.

4.12.1.2 Hazardous Waste Storage, Handling and Disposal

There are no designated hazardous material storage and handling areas, hazardous waste accumulation points, underground storage tanks (UST) or aboveground storage tanks (AST) within the RCI footprint (Seibel 2007).

Hazardous waste is collected in approved containers at waste accumulation points throughout the installation. Waste is transported by Environmental Compliance Consultants, Inc., to Building 3489, the centralized waste collection facility, where it is processed through the local Defense Reutilization and Marketing Office (Gray 2007). Emerald Services Alaska prepares the hazardous waste manifests and disposes of the waste at an approved facility of its choice (Gray 2007). Because Alaska has no long-term disposal facilities, all hazardous waste is transported to facilities outside of Alaska (Gray 2007).

Residents may surrender household hazardous waste at Building 3489 (Seibel 2007).

4.12.1.3 Site Contamination and Cleanup

Fort Wainwright was listed on the CERCLA National Priorities List, also known as Superfund, in August 1990 due to multiple releases of hazardous substances into the environment. This designation covers all of Fort Wainwright, including the RCI footprint, and all activities on the installation must comply with the relevant guidelines for work within a CERCLA site. A Federal Facilities Agreement (FFA) between the US EPA Region X, Alaska Department of Environmental Conservation (ADEC), and the US Army is also in place (US Army and ADEC 1991). The FFA sets deadlines, objectives, responsibilities, and procedural framework for implementing an Installation Restoration Program (IRP).

The IRP and Installation Action Plan (IAP) are used to track sites with past, present, or ongoing environmental activities across the entire installation. Fort Wainwright has 79 IRP sites, including 18 open sites (Fort Wainwright 2008). Two open sites are undergoing remedial investigation-construction and eight open sites are undergoing remedial investigation-operation; long-term monitoring is underway at the remaining eight open sites. Contaminants of concern include trichloroethylene (TCE); pesticides; POL; ethylene dibromide; dichloroacetic acid; lead; and tetrachloroethylene (Fort Wainwright 2008). Media of concern include soil, sediment, and groundwater (Fort Wainwright 2008). The sites include landfills, contaminated buildings, contaminated fill and sediment, spill sites, oil/water separators, explosive ordnance disposal areas, unexploded ordnance, surface disposal areas, storage areas, fire/crash training areas, POL lines, and UST and AST sites (Fort Wainwright 2008).

According to the IAP, two sites overlap and one site is immediately adjacent to the RCI footprint. FTWW-102 (Communications Site at Taku Gardens) is in the remedial investigation phase. FTWW-094 (East Quartermasters Former Fueling System), which includes the western portion of the grounds surrounding Building 1048 in North Town, has all remedial actions in place (Fort Wainwright 2008). FTWW-050 (North Post Site), which is adjacent to Chena Bend, is in the long-term monitoring phase (Fort Wainwright 2008).

Communication Site at Taku Gardens, FTWW-102. This approximately 54-acre site is recognized as Operable Unit 6 (OU6) by an amendment to the Federal Facilities Agreement that was signed in February 2007 (Shutt 2007). The CERCLA process is in the remedial investigation/feasibility study stage, although some interim remedial actions have already taken place. Contamination issues in the area include a polychlorinated biphenyl (PCB) release area, petroleum-contaminated soil, a drum burial site, general metal debris, and the potential presence of munitions and explosives of concern (MEC) (Shutt 2007; Malen 2007). The site is fenced and access is strictly controlled. The property would not become part of the project until all required remedial activities had been completed and approved by the appropriate regulatory agencies. Long-term land use restrictions may be imposed as part of the CERCLA requirements (Shutt 2007).

East Quartermasters Former Fueling System, FTWW-094. FTWW-094 slightly overlaps the western portion of the grounds of Building 1048 (Quarters 1). Petroleum, benzene, and TCE originating from leaking USTs and potentially from other sources contaminated area soil and groundwater, resulting in a plume that originally covered approximately 40 acres (Fort Wainwright 2008). Project milestones include an initial site investigation in 1989, a comprehensive site evaluation in 1994, and a remedial investigation in 1996. An air sparging/soil vapor extraction system was installed circa 1997 and was in use until 2005, at which time action

levels appeared to have been achieved (Fort Wainwright 2008). Monitored natural attenuation is also being used to address portions of the plume. Currently, some areas of the plume are monitored annually, while significantly remediated areas are monitored every five years. Future plans for the site include continued long-term monitoring and continued evaluation of a site-wide exit strategy.

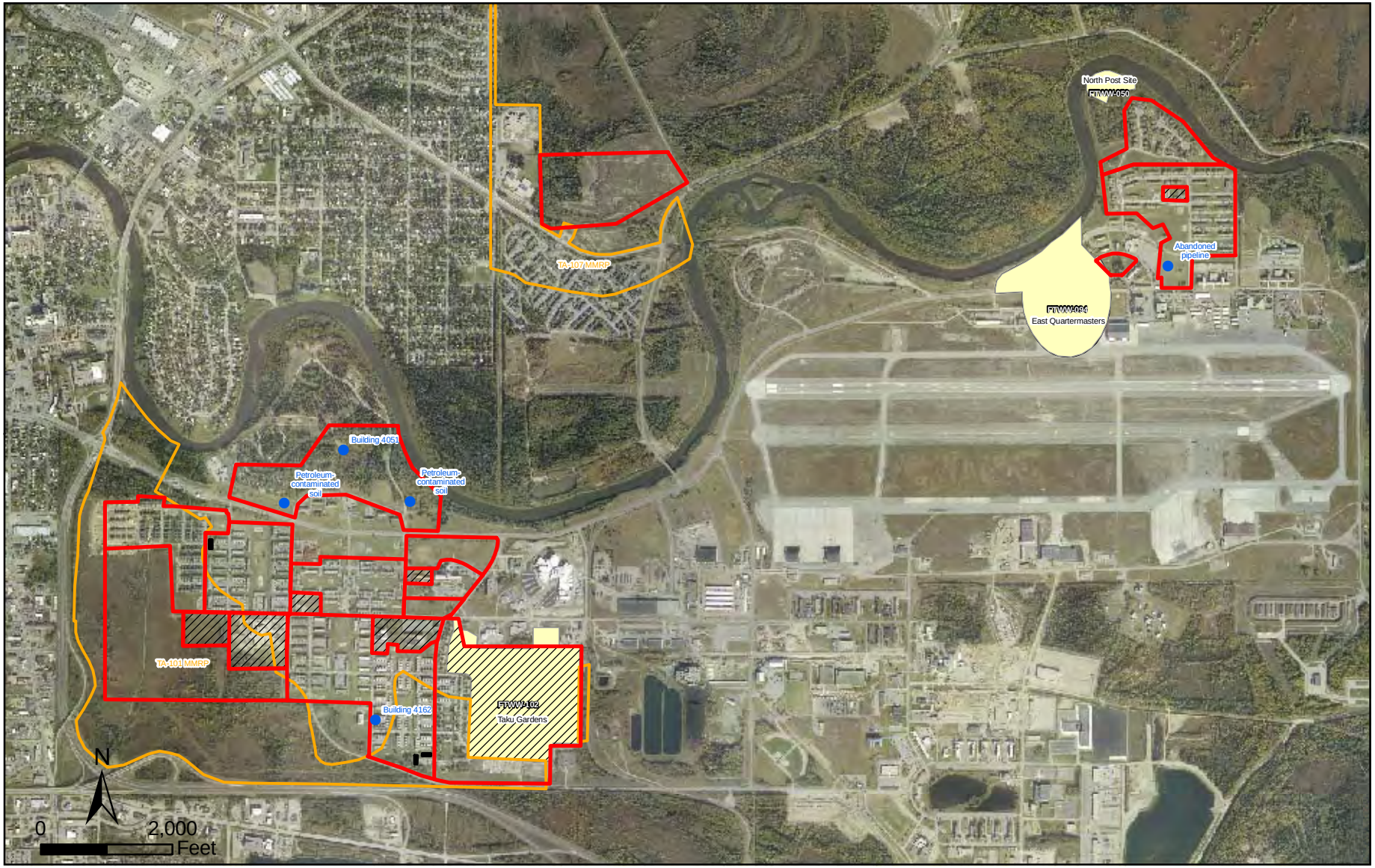
North Post Site, FTWW-050. FTWW-050 is adjacent to the north and west of Chena Bend and covers approximately 10 acres. Former USTs at the site leaked POL into soil and groundwater. The site is in the long-term monitoring phase (Fort Wainwright 2008). Contamination investigations began in 1985. Project milestones include soil removal efforts in 1993 and 1996, a remedial investigation in October 1994, and shutdown of an air sparging/soil vapor extraction system in November 2000, when action levels appeared to have been achieved (Fort Wainwright 2008). Sampling results in 2002 indicated that contamination levels were increasing and evidence of free product was found in one well (Fort Wainwright 2008). New wells were installed in June 2003, but sampling revealed no new information. A geotechnical investigation conducted in 2005 revealed high concentrations of metals, petroleum concentrations exceeding state standards, and low PCB concentrations (Fort Wainwright 2008). Future plans for the site include continued long-term monitoring.

Other Sites. In addition to the IAP sites, four petroleum release sites are within the RCI footprint. A leaking UST was in the north-central portion of Denali Village at the former site of Building 4051 (US Army 2006c). An 1,800-gallon UST leaked fuel into the soil, and approximately 80 cubic yards of soil were removed from the area in 1995 and 1996. Residual total petroleum hydrocarbons as diesel-range organics are estimated at 3,000 parts per million (ADEC 2007c). The closure letter for the site was issued in 1999 (ADEC 2007c). Petroleum-contaminated soils were also found in two areas totaling approximately 0.5 acre in Denali Village during recent construction. The contaminated soils were discovered during site grading, but the source of contamination is unknown (Larson 2007). The affected soils are stockpiled on-site and are covered with plastic sheeting; they will soon be disposed of properly (Harriman 2007). A leaking UST was located at Building 4162 in Southern Cross, near the intersection of Balsam Street and 8th Street (ADEC 2007c); a petroleum release to soils was confirmed in 1990 (ADEC 2007c). No contamination above the relevant action levels was discovered, and the site was closed without remediation in 1999 (ADEC 2007c). Petroleum products leaked into soil from an abandoned underground pipeline discovered during recent construction in North Town near Building 1455. The pipe was capped, and known contaminated soils have been disposed of.

A number of hazardous materials release sites are located on adjacent or nearby properties, but none of these properties are expected to affect conditions within the RCI footprint.

Figure 4-6 shows the locations of the FTWW-102, FTW-094, FTWW-050, and the petroleum release sites in relationship to the RCI footprint.

There are three monitoring wells and an automatic groundwater monitoring system on the west portion of Undeveloped Areas B and C.



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Installation Action Plan sites, Military Munitions Response Program sites and other hazardous materials release sites on or near the RCI footprint are shown.

Open Installation Action Plan Sites

Legend

- RCI Property
- Installation Action Plan Site
- Parcel not to be conveyed
- Building not to be conveyed
- Military Munitions Response Program Site
- Petroleum release sites

Fort Wainwright, Alaska

TETRA TECH

Figure 4-6

4.12.1.4 Special Hazards

MEC. MEC, which is now believed to have been inert munitions debris, were discovered in and removed from the recently constructed portion of Taku Gardens (FTWW-102, OU6). Although some of the military munitions recovered were destroyed as if they were high explosives, evidence suggests these were most likely inert munitions debris (e.g., empty projectile bodies) unlikely to detonate, as all other recovered munitions-related material have been at Fort Wainwright. The exception was two 3.5-inch rocket motors that contained unburned propellant and that certified unexploded ordnance technicians believed would not pose a significant hazard (King 2008).

A 120-millimeter smooth bore antiaircraft artillery site was located in the southwest portion of Undeveloped Area A in the 1950s (Griffin 2007); concrete foundations may remain (Griffin 2007). No MEC has been found, although no survey has been conducted (Griffin 2007). No signs of the artillery site were observed during the VSI.

A former 388.5-acre training range covers portions of Undeveloped Area A, as well as portions of neighboring residential communities, including Gertsch Heights, Northern Lights, and Southern Cross (Fort Wainwright 2008; US Army 2006b). Small arms and pyrotechnics were expended at this range from approximately 1942 until 1972 (Fort Wainwright 2008; US Army 2006b). The site is designated as munitions response site TA-101, or FTWW-002-R-01, and has been identified for further investigation under the active Army Military Munitions Response Program (MMRP) (US Army 2006b). The MMRP inspected the site in summer 2007, but the final conclusions of this inspection were not available at the time of this report's publication (Malen 2008). No signs of the range were observed during the Tetra Tech VSI.

From an unknown date until approximately 1953, a pistol range of approximately 0.25 acre was allegedly situated in the northwest corner of what used to be a large billeting and operations area for a wing- and brigade-sized element. This area is now a part of the recently constructed portion of Taku Gardens. The pistol range was designated as munitions response site FTWW-015-R-01 and has been identified for no further action under the MMRP managed by the Army Environmental Command (US Army 2006b). Potential munitions suspected at the site included small arms munitions less than .45 caliber (US Army 2006b). No signs of the range were observed during the Tetra Tech VSI.

In January 2008, US Army Garrison, Alaska issued a Memorandum for Record requesting that the entire FTWW-102 site (Former Communications Site), which includes Taku Gardens and the pistol range, be deleted from the MMRP remedial investigation. This area is the eastern portion of TA-101 and is enclosed by an eight-foot tall chain-link fence topped with triple strands of barbed wire. FTWW-102 is bordered on the west by the back yards of the duplex family housing units on the east side of White Street, on the north by Neely Road, on the east by the eight-foot chain-link fence on the edge of the Taku Gardens housing area, which is approximately 75 feet west of the Alaska Railroad main line, and on the south by Alder Avenue. Justification for this deletion is based on current CERCLA investigation and removal activities begun in summer 2007 and continuing into summer 2009. The remedial investigation report for these locations is in progress. Once removed from the MMRP remedial investigation, the affected portion of TA-101 (Former Communications Site, inclusive of pistol range) will be addressed under the Defense Environmental Restoration Program via the OU6 Record of Decision (Fosbrook and Malen 2008).

Figure 4-6 shows the approximate boundaries of the MMRP sites, assuming that sites within FTWW-102 are deleted from the MMRP remedial investigation, as requested.

PCBs. PCBs are industrial compounds used in electrical equipment, primarily capacitors and transformers, because they are electrically nonconductive and stable at high temperatures. Because of their chemical stability, PCBs bioaccumulate in organisms and persist in the environment. The disposal of PCBs is regulated by TSCA, which regulates the removal and disposal of contaminated equipment containing PCBs at concentrations greater than 50 ppm.

A post-wide survey to identify PCB-containing transformers was conducted at Fort Wainwright in the 1990s (Fort Wainwright 1997). All transformers containing more than 50 ppm PCBs were replaced, and a project is underway to replace all transformers containing more than 10 ppm PCBs (Seibel 2007). According to the Fort Wainwright Transformer Inventory, there were 21 transformers containing PCB oil on the installation in approximately 1997, but none were within the RCI footprint (Fort Wainwright 1997). The nearest PCB-containing device documented in the inventory was a pad transformer near demolished Building 3564, approximately 400 feet east of the recently constructed portion of Taku Gardens (Fort Wainwright 1997).

Fluorescent light ballasts were noted in the kitchens, bathrooms, and basements of many of the housing units inspected. Older fluorescent light ballasts may contain PCBs. Unless specifically identified as non-PCB-containing, fluorescent light ballasts are handled and disposed of as PCB-containing equipment (Seibel 2007). Those conducting the ECP deemed these fixtures unlikely to pose an environmental hazard as long as they remain intact. Before housing demolition, these fixtures will be removed and disposed of, in accordance with Army, US Department of Housing and Urban Development (HUD), and Occupational Safety and Health Administration (OSHA) guidelines. Included in these guidelines are contractor training, notification requirements, use of personal protective equipment, and approved disposal methods.

A PCB release occurred in the southwest portion of Taku Gardens (FTWW-102, OU6). All known and recently discovered PCB-contaminated soil at Taku Gardens has been removed and properly disposed of (Magid 2008).

Asbestos. Remediation for ACM is regulated by the EPA and OSHA. Asbestos fiber emissions into the ambient air are regulated in accordance with Section 112 of the Clean Air Act, which established the National Emissions Standards for Hazardous Air Pollutants. These standards address the demolition or renovation of buildings with ACM.

Two categories are used to describe ACM, friable and nonfriable. Friable ACM is defined as any material containing more than one percent asbestos (as determined by polarized light microscopy) that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable ACM is material that contains more than one percent asbestos and does not meet the criteria for friable ACM. ACM discussed in this report are assumed to be nonfriable unless otherwise noted.

In 1997, Hart Crowser conducted an asbestos survey on 176 family housing units. The most common ACM, based on total quantity, were floor tile, floor tile mastic, linoleum, linoleum mastic, wallboard, tar paper, pipe insulation, and pipe fitting insulation (Hart Crowser 1997). Asbestos floor tile was found in bedrooms, closets, halls, living rooms and occasionally in basements (Hart Crowser 1997). Asbestos-containing mastic was found in bedrooms, closets, halls, living rooms, kitchens, bathrooms, entryways, and stairways (Hart Crowser 1997). Tar paper was observed under floor tile (Hart Crowser 1997). Asbestos pipe fitting and pipe fitting insulation were typically in basements and were assumed to be present inside walls (Hart Crowser

1997). Some interior materials including hard pipe insulation, pipe fitting mudded elbows, cement asbestos board and transite were assumed to contain asbestos and often were not sampled (Hart Crowser 1997). Exterior materials, including caulking, roofing materials, window putty glazing, cement asbestos board and transite were generally not sampled due to the scope of the report but may contain asbestos (Hart Crowser 1997). In general, ACM were in good condition, although asbestos fibers were noted in settled dust in the basements of five units (Hart Crowser 1997).

Fort Wainwright personnel reported that subsequent to the 1997 Hart Crowser report, ACM were removed from living areas (i.e., areas other than the basement) in all family housing units constructed before 1985 (Kiser 2007). Basement labeling of asbestos-containing and asbestos-free pipes and other materials were noted in many units during a VSI in July 2007. No invasive ACM abatement has taken place and ACM may still be present inside walls in materials including insulation, pipes, and pipe fittings (Kiser 2007).

Lead-based paint. Current Army policy calls for controlling LBP by managing it in place, rather than using mandated removal procedures. In-place management prevents deterioration over time of those surfaces likely to contain LBP, followed by replacement, as necessary. Maintenance staff are given instructions on routine cleaning procedures to capture LBP fragments from suspected locations. Under US Army Engineering and Housing Support Center Technical Note 420-70-2 (*Lead-Based Paint: Hazard Identification and Abatement*), the demolition and removal of architectural components require that LBP be characterized and disposed of in accordance with applicable federal, state, county, and municipal laws, ordnances, and regulations for solid waste management. LBP would be encapsulated and removed in accordance with Army, HUD, and OSHA guidelines, which cover contractor training, notification requirements, use of personal protective equipment, and approved disposal methods.

In 1997, Hart Crowser conducted an LBP risk assessment on 60 family housing units. Deteriorated LBP was the most common lead hazard identified, although lead in soils and lead in dust were also discovered in some units (Hart Crowser 1997). Building components that routinely tested positive for deteriorated LBP included door components (doors, door jambs, moldings, and thresholds), window components, ceilings, built-in shelves, stairway components, trim, porch handrail caps, painted columns, cabinet surfaces, basement wall registers, and building siding (Hart Crowser 1997).

Dust samples were compared to 1995 EPA and HUD guidance concentrations (Hart Crowser 1997). Dust sample results exceeded the relevant EPA and HUD criteria in 17 percent of floor samples, 100 percent of stair tread samples (also considered floor samples), less than five percent of window sills, and nine percent of window troughs (Hart Crowser 1997). Concentrations of lead in dust were detected at almost 300 times the relevant EPA and HUD criteria in one window trough sample (Hart Crowser 1997). Current EPA and HUD lead clearance and risk assessment guidance concentrations for dust samples are 40 micrograms per square foot ($\mu g/ft^2$) for floor samples (both hard and carpeted) and 250 $\mu g/ft^2$ for interior window sills (HUD 1999). There is no current standard for window troughs (HUD 1999).

During a VSI in July 2007, chipped, peeling, or flaking paint was observed on five building exteriors, although paint chips were observed in the soil outside only Building 4008 (constructed in 1949). Chipped paint was observed in some building interiors, particularly on basement stairs, but no paint chips were observed on the floors of housing units.

Lead in soil. Lead concentrations in soil that exceed the EPA and HUD criteria were measured around family housing units and in play areas on the RCI footprint during a 1997 survey (Hart Crowser 1997). Thirty-one soil samples were collected from building perimeters, and 68 samples were collected from child play areas in building yards (Hart Crowser 1997). Samples were compared to 1995 EPA and HUD guidance concentrations of 400 ppm for bare soils in areas expected to be used by children and 2,000 ppm for bare soil in other areas (Hart Crowser 1997). More than 25 percent of the building perimeter samples exceeded the EPA and HUD criteria of 2,000 ppm (Hart Crowser 1997). Approximately 16 percent of play area soil samples exceeded EPA and HUD criteria of 400 ppm, with two samples exceeding the criteria by 10 percent and one sample with a soil concentration of 28,000 ppm, nearly 70 times the EPA and HUD criteria (Hart Crowser 1997). The 1997 Hart Crowser report did not include sample location maps and presented sample results by floor plan rather than by building number and unit; therefore, it is not possible to determine exactly where elevated lead concentrations were detected. Soils still may have elevated lead concentrations.

Pesticides. Fort Wainwright has an Installation Pest Management Plan that includes the specific procedures for health and environmental safety, pest identification, pest management, and pesticide use, storage, transportation and disposal (Fort Wainwright 2004). The Installation Pest Management Plan defines a framework for integrated pest management, which is a sustainable approach to pest management that aims to reduce reliance on chemical pest controls by integrating biological, cultural, and physical pest controls. All federal agencies are mandated to use integrated pest management, by Section 136r of Title 7, United States Code, *Federal Insecticide, Fungicide and Rodenticide Act*, as amended.

Pesticides used in family housing areas include insecticides, herbicides, fungicides, and rodenticides (Fort Wainwright 2004). Soil sterilizing agents may be applied to railroad tracks, electrical transformer sites and the airfield (Fort Wainwright 2004). Pesticide application is forbidden on playgrounds, wetlands, and surface water bodies and is kept to a minimum in other sensitive areas (Fort Wainwright 2004). Herbicides and other pesticides that target outdoor pests are generally applied only from mid-April through mid-October; cold temperatures serve as a natural control for outdoor pests during the remainder of the year (Fort Wainwright 2004). Indoor pests, including cockroaches, earwigs, silverfish, spiders, fleas, wasps, rodents, carpenter ants, wood-destroying fungi, and invertebrates, are treated on an as-needed basis throughout the year (Fort Wainwright 2004). Chlorinated hydrocarbon pesticides have not been used at Fort Wainwright (Gray 2007).

Chugach-McKinley, a Housing Office contractor, responds to calls from residents requesting pest control (Gray 2007). When used, pest control measures are applied to all units in a building in order to be effective because utility corridors run the length of the buildings and pests can easily migrate along these corridors (Gray 2007). Fort Wainwright does not provide any pesticides to residents for personal use, although residents may purchase and use commercial pesticides (Gray 2007).

Radon. Radon is a naturally occurring, colorless, and odorless radioactive gas that is produced by the decay of naturally occurring radioactive material, such as potassium and uranium. Atmospheric radon is diluted to insignificant levels, but, when concentrated in enclosed areas, radon can present human health risks. The EPA has determined that the FNSB is in Federal EPA Radon Zone 2, indicating average indoor radon concentrations range from greater than or equal to 2 picoCuries per liter (pCi/L) to less than or equal to 4 pCi/L.

A post-wide radon survey that included all family housing was conducted in 1994 and 1995 (Adams 2007). Only one radon test returned a level that exceeded the EPA's recommended action level of 4 pCi/L; this was in the clear well building at the water treatment plant, and a fan was installed as remediation (Adams 2007). Since 2000, new housing units have been constructed to the State of Alaska building standard, which requires radon mitigation (Adams 2007). Housing units built since 2000 have not been tested for radon (Adams 2007). Fort Wainwright does not have an active radon testing program (Adams 2007).

Other Conditions of Concern. No issues related to radioactive materials or medical/biohazardous waste were noted on or adjacent to the family housing areas. Mold has occurred infrequently in family housing buildings (Harrell 2007). The Housing Office and the Preventive Medicine Department address all tenant reports of suspected mold growth (Harrell 2007). Tenants are also instructed to take basic preventive measures to inhibit mold growth (Harrell 2007).

4.12.2 Consequences

The effects of the proposed action would be limited to the RCI footprint. Conditions on adjacent properties are also considered where those properties have the potential to affect the RCI footprint. Significant adverse effects would occur if an action were to:

- Substantially increase the risk of accidental explosion or fire hazards or the release of hazardous substances;
- Interfere with an emergency response or evacuation plan; or
- Expose people or the environment to a potential health hazard.

The potential environmental impacts of implementing the RCI proposed action and the no action alternative are evaluated in the following sections.

4.12.2.1 Proposed Action

Overall, short-term minor adverse impacts and long-term minor beneficial impacts are expected to result from implementing the proposed action, given the mitigation measures described.

Construction Activities. Potential short-term minor adverse impacts would result from construction, renovation, and demolition on the RCI footprint. Project construction would require that POL, propylene glycol for radiant floor heating, paint, asphalt, and other potentially hazardous materials be transported to, temporarily stored on, and used on the RCI footprint. The temporary presence and use of these materials on the RCI footprint increases the risk of hazardous materials released to the environment and accidents that could affect the health and safety of workers and other persons in the vicinity.

Transporting, storing, handling, and disposing of all hazardous materials and waste would comply with all applicable federal, state, county, and municipal laws, ordnances, and regulations. Army Alaska Family Housing would notify workers of any potential health hazards, and the workers would use proper health and safety measures, in accordance with Fort Wainwright protocol and applicable regulations. Also, Army Alaska Family Housing would employ personnel trained and certified by the OSHA for any activities potentially involving exposure to hazardous substances. Army Alaska Family Housing would use BMPs, such as secondary containment, fencing, and signs, to ensure that workers and residents were not exposed to hazardous materials and that hazardous materials are not released to the environment. Persons working with or near fresh paint

and asphalt would protect themselves by wearing appropriate clothing, washing their hands before eating or smoking, and bathing at the end of each workday. The construction contractors would be responsible for preventing paint and fuel spills by properly storing and handling these materials, paying attention to the task at hand, and driving safely. With use of proper hazardous materials management practices, impacts would be minor adverse.

In the past, construction workers on the RCI footprint and in other portions of the cantonment area have encountered hazardous and potentially hazardous materials, including metal debris and petroleum-contaminated soils. Potential short-term adverse impacts would occur if such materials were discovered; however, because these materials would be handled in a manner consistent with applicable federal, state, county, and municipal laws, ordnances, and regulations, impacts would be minor.

Construction sites would be fenced and access would be properly controlled in order to prevent residents, particularly children, from entering these sites.

Site Contamination and Cleanup. PCBs, POL, TCE, pesticides, solvents, and potentially MEC have been released to soil and groundwater on portions of the RCI footprint, as described in Sections 4.12.1.3 and 4.12.1.4. In accordance with the FFA and in coordination with the ADEC and the EPA, the Army will perform remedial actions necessary for the property to be safe for residential use. Also, the Army will establish institutional and land use controls that Army Alaska Family Housing, and by extension its subcontractors, workers, and customers/residents, would adhere to. These controls would be sufficient to preclude the possibility of detriment to human health and the environment and to eliminate the possibility of dangerous exposure, even if contamination exists. Portions of active remediation sites, where residents, particularly children, could come in contact with contaminants would be fenced or otherwise controlled. In the event that a new potentially contaminated site is identified, appropriate interim controls would be immediately implemented in the potentially affected area to prevent resident exposure. Army Alaska Family Housing, and by extension its subcontractors, workers, and customers/residents, would comply with all relevant long-term engineering, land use, and institutional controls, as well as with other requirements from the applicable ROD. For example, Army Alaska Family Housing would comply with requirements for dig permits, worker certification, and notification requirements. Therefore, minor adverse impacts on human health and the environment would be expected from contaminated sites. Residual contamination, or concentrations of contaminants below the relevant action threshold, may remain on the property after all remedial actions are completed.

MEC. MEC have been discovered or are potentially present on portions of the RCI footprint, as described in Section 4.12.1.4. Construction workers in portions of the RCI footprint could encounter or disturb MEC. Coordination with Army safety personnel would be required for any construction in areas that potentially contain MEC. All individuals involved in ground-disturbing activities in the affected areas would receive MEC familiarization training. If applicable, certified unexploded ordnance technicians would oversee ground-disturbing activities. In the event that MEC or suspected MEC is discovered on the RCI footprint, all intrusive or ground-disturbing activities would cease, and the Fort Wainwright Provost Marshall's Office would immediately be notified. The MEC or suspected MEC would not be disturbed in any way until qualified personnel could dispose of it. With implementation of these measures, minor adverse impacts are expected.

PCBs, ACM, and LBP. Long-term minor beneficial effects are expected to result from removing hazardous materials from housing units. Hazardous materials that are present in the Army family

housing units on Fort Wainwright include ACM, LBP, pesticides, and possible PCBs in the ballasts of older fluorescent lighting. The actual and suspected ACM, interior and exterior LBP, and potential PCB-containing light ballasts would be removed from Army family housing units or would be encapsulated during renovation or demolition. Because all hazardous materials would be handled in a manner consistent with applicable federal, state, county, and municipal laws, ordnances, and regulations, no environmental or health effects resulting from removing, handling, and disposing of the hazardous materials are expected.

Lead in soil. Elevated lead concentrations may still be present in soil around family housing units and in play areas (yards), as described in Section 4.12.1.4. Degradation of exterior LBP allows lead to enter the soil. Inhaling or ingesting lead-containing soil negatively affects human health. Children are particularly sensitive to lead, and serious health effects can result from inhaling or ingesting even small amounts.

To mitigate these impacts, a comprehensive survey of lead levels in soil would be conducted in all family housing areas where structures existed before 1978 and where exterior LBP could reasonably be expected to have come in contact with soil. Based on the results of the survey and applicable regulations, appropriate abatement measures would be implemented. Abatement measures could include physical removal of contaminated soil or lead removal using a chemical fixing agent.

In the interim, ground cover would be maintained to prevent human contact with bare soil. Where vegetative ground cover is not in place, bare soil would be covered with a thick layer of wood chips, sand, top soil or other appropriate materials. Snow and ice also provide a natural impediment to soil contact during part of the year. Residents would be informed of the potential for elevated soil lead levels and would be provided with a fact sheet detailing methods to protect children from exposure. Methods to reduce child exposure are as follows:

- Reducing contact with bare soil by maintaining ground cover;
- Removing shoes at the door so as not to track soil inside the house;
- Washing floors and vacuuming carpets frequently;
- Placing a rug by the door to capture soil on shoes and washing the rug frequently;
- Creating a sandbox or other play area with known clean fill;
- Washing hands, toys, and pacifiers frequently; and
- Washing hands before eating.

The Bassett Hospital would test the blood-lead levels of children as requested by parents and guardians. Army Alaska Family Housing, and by extensions its subcontractors, workers, and customers/residents, would abide by the provisions of the Fort Wainwright Lead-Based Paint Management Plan (Fort Wainwright 2007b). By implementing these mitigation measures, short-term impacts are expected to be minor adverse. Potential long-term beneficial impacts would result from removing lead-contaminated soil from family housing areas.

Pesticides. Under the proposed action, DoD and ADEC-certified contractors would continue to apply EPA-registered pesticides. Army Alaska Family Housing would comply with Fort Wainwright's integrated pest management plan, which, among other provisions, forbids applying

pesticides on playgrounds, wetlands, and surface water bodies and keeps application to a minimum in other sensitive areas; thus, no adverse impacts are expected.

Radon. While no radon levels of concern have been recorded in family housing areas, a general practice in the area is to incorporate radon vapor ventilation systems into modern (post 2000) construction in accordance with the State of Alaska building standards. Long-term minor beneficial impacts are expected from incorporating these ventilation systems because they would further reduce radon levels in family housing units.

Other conditions of concern. Some materials, while essentially inert under normal conditions, can be potentially hazardous under specific circumstances. Wood and dry concrete can generate airborne particulates as they are cut or sanded. To protect against adverse effects of such particulates, workers should wear face masks and safety glasses when performing these tasks. Wood and other construction materials are also flammable. Establishing dedicated smoking areas and prohibiting open flames near flammable materials would greatly reduce the risk of fire. If proper precautions are taken, there would be no adverse effects from the actual and suspected hazardous materials at Army family housing units, as well as those associated with demolition, construction, and renovation.

4.12.2.2 No Action Alternative

Minor adverse effects could occur. Due to the extensive maintenance backlog and budget constraints, it is possible that Army family housing units containing special hazards, such as LBP, ACM, and possible PCBs in older lighting ballasts, could deteriorate to the extent that those substances would pose health risks to occupants and, in the case of exterior LBP, be released to the environment. The assumption is that Fort Wainwright would continue to abate these potential hazards in accordance with applicable laws, but it would be over a much greater period than under the proposed action, so the possibility of adverse effects exists.

4.13 CUMULATIVE EFFECTS SUMMARY

4.13.1 Introduction

The cumulative effects of the proposed action are identified in this section. They are defined in the Code of Federal Regulations (40 CFR Part 1508.7) as "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 nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." Only those resources with similar and comparable types of environmental effects from both the proposed action and the cumulative projects are considered to have cumulative effects.

Unless otherwise specified, the ROI for a particular resource in the cumulative analysis is the same as the ROI for that resource in the analysis of the environmental effects from the proposed action.

This is an analysis of the effects of the proposed action, as evaluated in detail in Chapter 4, when combined with the effects of other past, present, and future actions in the affected region. Current or reasonably foreseeable actions that have been identified are described below.

4.13.2 Cumulative Actions

The actions listed in this section were identified by contacting representatives of Fort Wainwright, Fairbanks Planning Department, and the FNSB Planning Department.

Grow the Army Force Structure Realignment

Under this project, the Army is growing and realigning its forces in support of operations in the Pacific Theater. At Fort Wainwright, this would involve adding 425 Soldiers and their families and upgrading four training range facilities within the Small Arms Complex. Facilities would be constructed in the cantonment area and would include a unit operations and administrative facility, company headquarters (barracks, engineer company operations facility, military police company operations facility, and vehicle maintenance facility), and a barracks building. An EA for this project was completed in September 2008.

US Army Alaska Transformation

Under this project, the Army is transforming the 172nd Infantry Brigade (Separate) at Fort Wainwright and Fort Richardson into a Stryker Brigade Combat Team. Actions at Fort Wainwright associated with this transformation are an increase in the number of Soldiers from 4,393 to 5,407, an increase in training from 73,817 to 89,140 Soldier user days, and the construction of two COFs (Project 66835). The Army has proposed other construction projects essential to support transformation to be independent of the transformation process because they are considered mission requirements of the existing units. An environmental impact statement for this project was completed in 2004.

Construct Replacement Family Housing and Revitalize Family Housing Neighborhoods, 2004-2010

The Army is planning to replace, revitalize, and build new family housing sites on the Main Post of Fort Wainwright. The project, composed of several housing complexes, will be on the Main

Post. Replacement housing includes two complexes, one with 140 family housing units on 66 acres and another with 18 four-bedroom units and 26 three- and five-bedroom units. Additionally, 86 units will be replaced in a third housing complex. Revitalization projects include several complexes with a total of 97 family housing units, 136 three-bedroom Junior Officer units, and 16 five-bedroom Junior and Senior Officer units. New housing includes 160 family housing units, 214 three-bedroom Junior Officer units, 100 four-bedroom Junior Officer units, 33 five-bedroom Junior Officer units, and 42 three-bedroom Senior Officer units. An EA prepared for this project was completed in June 2004. A record of environmental consideration for this project was completed in 2006.

The actions analyzed in the housing EA are contributing additional family housing units to the housing inventory that would be conveyed to Army Alaska Family Housing as part of the RCI project. The analysis in this RCI EA addresses impacts that would result from the proposed action described in Section 2.2, following the completion of the housing areas addressed in the housing EA.

Installation Fencing Project

The Army installed a fence along certain portions of the Main Post to delineate the boundary, to deter vehicular and pedestrian trespass and illegal activity, to protect resources necessary for national defense, and to provide Soldiers with an increased opportunity to meet their training standards safely and efficiently. Four types of fencing were used: pipe-rail, chain-link, a combined security design, and stone. An EA prepared for this project was completed on July 28, 2004. The project was completed in October 2006.

Bassett Army Community Hospital

In 2006, the Medical Department Activity constructed the new Bassett Army Community Hospital, which is the main health care center for Fort Wainwright. The modern, 269,000-square-foot, 32-bed facility is capable of handling all types of health issues. It is the only Army hospital in interior Alaska providing services to active duty US armed service personnel, their families, and retired military members and their families. An EA for this project was completed in February 1998, and the old hospital was demolished in 2008.

Other Army Projects at Fort Wainwright

Table 4-13 includes additional recently completed and reasonably foreseeable future Fort Wainwright projects.

Regional Projects

Future activities and projects in the Fairbanks area include the following:

- Community development in Fairbanks;
- Alaska railroad expansion;
- Alaska Railroad Corporation Fort Wainwright Realignment Project;
- Natural gas pipeline; and
- Richardson Highway upgrade.

Table 4-13
Army Projects

Beneficial Occupancy Date	Project Description	Project Number
Completed	Barracks Complex (Neely Road) – Construct a 144-Soldier barracks to meet current Army criteria and two medium-size two-story Battalion Headquarters.	47125*
Completed	Barracks Complex (Santiago) – Construct a barracks and four company operations facilities (one large and three medium).	46789*
Completed	Army Family Housing Replacement – Replace 60 officer and enlisted family housing units.	60198*
Completed	Army Family Housing Replacement – Replace 86 enlisted family housing units.	60210*
Completed	Hangar Replacement – Replace aircraft maintenance and storage hangar.	41753*
Completed	Modularity Site Improvements – Site preparation for temporary relocatable facilities.	63069*
Completed	New Housing – Construct 100 Junior Noncommissioned Officer units	59028*
Completed	Bassett Hospital Replacement, Phase 6.	34810*
Completed	Barracks (Montgomery Road) – Construct a 144-Soldier barracks with Soldier community building.	46790*
Completed	Army Family Housing Replacement – Construct 67 Noncommissioned Officer family quarters.	62512*
Completed	Army Family Housing Replacement – Construct 72 units (56 three-bedroom Junior Noncommissioned Officer and 16 five-bedroom Senior Noncommissioned Officer).	61726*
Completed	Heliport Pad – Construct a helicopter pad for the newly constructed Bassett Army Community Hospital.	61527*
Completed	Information Systems Facility – Construct a 9,000-square-foot facility	61500*
October 2009	Organizational Vehicle Parking – Construct organizational vehicle parking hardstands to support the Stryker Brigade Combat Team. Project consists of removing and disposing of worn asphalt areas and grading and spreading sub-base and portland cement. Cable television and lighting will be installed to current standards.	63080*
November 2009	Army Family Housing Replacement – Construct 74 enlisted family quarters in the Denali Village housing area.	62321*
November 2009	Army Family Housing Replacement – Construct 76 Junior Noncommissioned Officer three-bedroom family quarters in the Denali Village housing area.	62513*
November 2009	Army Family Housing Replacement – Construct 50 Junior Noncommissioned Officer three-bedroom family quarters in the Denali Village housing area.	62514*
November 2009	Grow the Army Barracks – Construct a 94-Soldier barracks.	68856*

Table 4-13
Army Projects *(continued)*

Beneficial Occupancy Date	Project Description	Project Number
December 2009	Company Operations Facility – Construct a duplex facility for the Stryker Brigade Combat Team.	66835*
July 2010	Child Development Center – Construct a 195-child School Age Services Center for children ages 6-12.	60054*
August 2010	Training Support Center – Construct a 26,500-square-foot center.	34129*
September 2010	Grow the Army Company Operations Facility – Construct a facility and administrative building.	68853*
September 2010	Tactical Vehicle Wash Facility – Construct a facility.	63006*
April 2011	Barracks Complex – Construct a 144-Soldier barracks, in accordance with the Whole Barracks Renewal Program criteria, and a fourplex company operations facility.	61530*
September 2011	Aviation Unit Operations Building – Construct a facility to house the 3rd Air Support Operations Squadron. Project includes multifunctional facility, command offices, mission planning, flight operations offices, enclosed storage, signal maintenance, vehicle maintenance, operational supplies, restrooms, and physical training rooms.	61507
October 2011	Shipping and Receiving Building – Construct a new rail operations facility to provide additional loading/unloading spurs, concrete end ramps, hardstand for marshaling tactical vehicles, a container transfer pad, rail operations building, security fencing, and high-mast lighting for 24-hour operations.	61503*
November 2011	Enlisted Unaccompanied Personnel Housing – Construct Phase 1 of a standard design Aviation Task Force Complex. This is a four-phase project. Primary facilities in this phase include barracks, consolidated vehicle maintenance facility, aircraft parts storage building, and vehicle parking.	65076
FY 2011	Urban Assault Course – Construct a standard design urban assault course, including range operations and control area, downrange electrical, operations and storage building, ammunition breakdown building, latrine, and building information systems.	71697*
FY 2013	Aircraft Maintenance Hangar – Primary facilities in this project include helicopter parking, a hangar to house OH-58D Kiowa helicopter, a fiveplex company operations facility, pump house and water storage tanks for deluge systems, and organizational storage.	67112
FY 2014	Aviation Task Force Complex, Phase 3 – Construct a threeplex company operations facility near the hangar, a new helicopter high-bay hangar, and organizational parking.	67113
FY 2015	Physical Fitness Center With Pool – Construct a new physical fitness center with pool. Facility to include cardiovascular and weight room, locker and shower rooms, lobby with control station, equipment storage areas, basketball court, exercise room, swimming pool with eight lanes, two diving boards, water slide, kiddy pool, whirlpool bath, deck space, employee locker rooms, and administrative space.	61508

Table 4-13
Army Projects *(continued)*

Beneficial Occupancy Date	Project Description	Project Number
FY 2015	Stryker Combat Team Complex – Construct a standard design battalion complex for the Stryker Brigade Combat Team. Complex to include battalion headquarters, organizational classroom, four company operations facilities, barracks, and organizational vehicle parking, with all required ancillary facilities.	64018
FY 2015	Barracks – Construct a 276-Soldier barracks.	59982
FY 2015	Modified Record Fire Range – Replace and expand eight modified record fire lanes. Project includes upgrading the control tower, adding a general instruction building, concrete walk-in fire positions, and enclosed bleachers.	61681*
FY 2015	Automated Pistol Range – Construct within perimeter of the range complex an automated target and instrumentation system, heated and air-conditioned small-range operation center/tower (Building 17123), heated operation and storage building (Building 17122), heated latrine with vault (Building 73075), lighted and heated enclosed bleachers for 40 Soldiers (Building 75061), heated general instructional building (Building 17120), heated ammunition issue building (Building 17129), service roads and bridges, unit staging area, site improvements, associated range power, and data transfer cabling.	62302*
FY 2015	Brigade Headquarters Building – Construct a combined brigade headquarters/battalion headquarters with sensitive compartmented information facility, a separate battalion operations facility, organizational classrooms, and a duplex company operations facility near the motor pool and replace an aging aircraft refueling point.	67116

*NEPA documents have been prepared for these projects.

Source: US Army

City of Fairbanks. In Fairbanks, average annual residential construction from 1996 to 2007 was 46.3 structures, including 41.8 single-family structures and 3.0 multifamily structures (Fairbanks North Star Borough, Community Research Center 2008). Annual residential construction increased from 30 structures in 1996 to 43 structures in 2007, an increase of 43 percent. During this period, the construction of single-family homes increased from 28 per year to 35 per year, a 25 percent increase. Construction of multifamily homes decreased from two per year to one per year, a 50 percent decrease, during the same period. The Fairbanks population grew from 30,167 in 2000 to 31,142 in 2006, an average annual increase of 0.5 percent (Fairbanks North Star Borough, Community Research Center 2008).

Fairbanks North Star Borough. In the FNSB, average annual residential construction from 1996 to 2007 was 676.5 structures, including 530.4 single-family structures and 23.8 multifamily structures (Fairbanks North Star Borough, Community Research Center 2008). Annual residential construction increased from 341 structures in 1996 to 891 structures in 2007, an increase of 161 percent. During this period, the construction of single-family homes increased from 270 per year to 612 per year, 127 percent increase. Construction of multifamily homes increased from 6 per

year to 31 per year during the same period, a 417 percent increase. The FNSB population grew from 83,299 in 1998 to 97,484 in 2007, an average annual increase of 1.9 percent (Fairbanks North Star Borough, Community Research Center 2008).

4.13.3 Cumulative Impacts

4.13.3.1 Land Use

The proposed action would not have any adverse cumulative land use impacts. Construction would occur on lands already designated for family housing and family housing support use. The proposed action is consistent with FNSB's planning and zoning. No development would occur on undeveloped parcels included in the RCI footprint, so the proposed action would not contribute to any cumulative land use impacts.

4.13.3.2 Aesthetics and Visual Resources

Cumulative actions involve construction, resulting in a visible increase in traffic and an increase in activity and equipment from workers. The cumulative actions would diminish the visual character or quality of an area, but they would be short term and minor because project traffic, activity, and equipment from workers are expected to be limited in duration.

Cumulative actions involve constructing more buildings and facilities, resulting in a visible loss of the natural environment and natural open space. The cumulative actions could include structures or land alterations visually incompatible or obtrusive to the visual setting and landscape, thereby diminishing the visual character or quality of an area. These types of adverse impacts occur slowly, as undeveloped or natural areas are converted to developed parcels. Consequently, the adverse impacts also occur slowly and become more adverse with time due to the growth of the built environment. Because the activities under the proposed action would occur on already developed parcels, they would make minor contributions to cumulative effects.

Cumulative actions involve new sources of light and glare spread across areas currently void of such sources, thereby diminishing nighttime darkness. These actions also reduce opportunities to witness wildlife that are hesitant to approach brightly lit areas. These types of adverse impacts occur slowly, as areas are converted from open space to developed parcels. Consequently, the adverse impacts also occur slowly and become more adverse with time due to the accumulation of sources of light. Because the activities under the proposed action would occur on already developed parcels, they would make minor contributions to cumulative effects.

4.13.3.3 Air Quality

Adverse cumulative air quality impacts associated with the proposed action could occur when multiple projects occur concurrently. Air quality impacts associated with the proposed action would be from fugitive dust and carbon monoxide during demolition, renovation, and construction. The potential of minor adverse cumulative impacts from construction equipment and fugitive dust exist for the proposed action and the other projects within Fort Wainwright. However, the proponents of the cumulative projects would be responsible for ensuring that their projects are in compliance with air quality standards, and therefore, cumulative air quality impacts would not be significant.

4.13.3.4 Noise

Cumulative development projects would increase local noise levels from construction, but the noise would be temporary and intermittent. The increases in traffic due to cumulative development also would increase noise levels. However, the proposed action would not result in additional traffic and would not contribute to the long-term cumulative noise impact.

4.13.3.5 Geology and Soils

Short-term minor adverse effects are expected. Other projects in the vicinity of the RCI footprint could cumulatively increase erosion and impact permafrost in the ROI. Proponents of the individual projects would be responsible for conducting soils investigations and implementing BMPs to reduce the adverse impacts on permafrost and potential impacts on soil erosion. Therefore, cumulative impacts on geology and soil in the ROI would be short term and minor.

4.13.3.6 Water Resources

Cumulative development activities would increase the potential for soil erosion and sediments transported in runoff; project developers would use BMPs to control erosion and to minimize the potential for sedimentation. Any construction projects on sites greater than one acre would be required to implement a SWPPP to minimize their effects on surface water. These projects also would increase the demand on regional sources of potable water. Therefore, cumulative impacts of the proposed action and other nearby projects would not be significant.

4.13.3.7 Biological Resources

Cumulative impacts could conceivably occur on biological resources if the proposed action and other cumulative actions were to contribute to impacts. Impacts would be considered directly or indirectly significant when the combined impacts of several actions substantially affect species, populations, or habitats. Cumulative impacts could occur on biological resources from the proposed projects at Fort Wainwright depending on the proximity of those projects to the ROI. Impacts could occur through actions that result in diminishing the amount of open space and available habitat for biological resources or that increase human-related disturbances (e.g., noise, traffic, human presence). At this time, many of the planned future construction projects are in developed areas or outside the ROI. If open space were to be converted, the necessary biological assessments would be made in order to identify any significant impacts on plant and wildlife species and habitats associated with construction or land use changes.

Cumulative effects on MBTA species, including those on cliff and bank swallows, mew gulls, and bald and golden eagles, would be considered significant if the combined impacts of projects were to substantially affect these species, or if project actions were to result in take. If the populations or habitat, particularly nesting habitats, for these MBTA species were adversely impacted, consultations would have to take place to ensure mitigations and to reduce take. NEPA analyses done by proponents for these future projects would address potential impacts and identify mitigations if needed. If planned projects were to include changing building sites such that cliff swallow nests would be affected, the necessary biological assessments would need to be performed to evaluate the potential for and level of adverse impacts on this species. The use of BMPs and mitigation under NEPA by the project proponents would help ensure that there would only minor adverse cumulative impacts on these resources.

Development projects in Fairbanks and the FNSB would not have any associated impacts on biological resources within this project's ROI, thus there are no cumulative impacts.

4.13.3.8 Cultural Resources

The proposed action would not significantly impact cultural resources. No archaeological resources of significance, TCPs, or other Native American resources are within the proposed project APE. Building 1048 is within the RCI APE for the proposed action and is a contributor to the Ladd Field NHL and Ladd AFB Cold War Historic District. Any impacts of the proposed action on Building 1048 would be mitigated by implementing the PA and the provisions of the environmental concerns document and mitigation measures specified in Section 4.8 of this EA. Other impacts are addressed by implementing the ICRMP's Standard Operating Procedures for Accidental Discovery of Archaeological Materials and by complying with the Native American Graves Repatriation Act.

Cumulative projects may include the construction of facilities that do not reflect the historic setting of the Ladd Field NHL or the Ladd AFB Cold War Historic District, or they may be constructed within the viewshed of the historic properties. Examples of these cumulative construction projects are the Replacement Family Housing and Revitalize Family Housing Neighborhoods (2004-2010), the Railhead Facility and Truckloading Complex project, and the Stryker Combat Team Complex. These projects could have a significant adverse impact on cultural resources. To mitigate this impact to less than significant, those project proponents should design the proposed facilities to be in accordance with the North Post/Ladd Field Distinguishable Area Design Guidelines (US Army 2005b) and to be consistent with the Secretary of the Interior's Standards and Guidelines. Other options include implementing a development layout that locates new buildings and structures away from buildings that contribute to the Ladd Field NHL and Ladd AFB Cold War Historic District, in particular Building 1048.

Because the proposed action would not have significant impacts on cultural resources, cumulative projects, with the inclusion of similar measures as those mentioned above, would also reduce significant impacts, and there would be no significant cumulative effects on cultural resources.

4.13.3.9 Socioeconomics

The proposed action would contribute to cumulative socioeconomic beneficial impacts. Such cumulative projects as the Child Development Center and the Replacement Family Housing would add to the enhancement in the quality of life at Fort Wainwright. The proposed action would not contribute to cumulative socioeconomic adverse impacts in the project area.

4.13.3.10 Transportation

The cumulative actions described above in Section 4.13.2 (Table 4-13) were reviewed to assess the potential for cumulative transportation-related impacts associated with the Preferred Alternative. Several development projects are planned to take place on the Main Post (the ROI) during the five-year RCI development period that, together with the proposed action, could result in minor to moderate cumulative transportation-related impacts. The types of cumulative impacts most likely to occur would include (a) increases in construction-demolition-related traffic on main and local community roadways; (b) congestion and delays at major intersections and construction zones within communities; and (c) increased risks to children and other pedestrians in those communities undergoing development activities.

The conclusion that the level of transportation-related impacts would be minor to moderate is based on the following assumptions:

- Traffic impacts due to demolition and construction traffic would be intermittent and temporary.
- Traffic levels on affected roadways would be monitored during development periods, and demolition and construction vehicles could be regulated to use alternate access gates and travel routes at different times of the day or to travel at off-peak hours.
- The multiple construction/demolition sites that make up the RCI footprint and the other planned Army projects are fairly spread out on the Main Post.
- The demolition and construction traffic increases would be of relatively short duration.
- It is likely that multiple travel routes would be voluntarily used by construction and demolition vehicles.
- Alternate Main Post access gates and routes would be available as required.
- Residents of the various communities would be forewarned and alerted when construction and demolition, with attendant traffic, are planned to be in their area.
- Construction and demolition vehicles could be required to use flashing lights and possibly auditory warning devices when traveling through areas where children are present.
- Crossing guards would be stationed at selected intersections and play areas at certain times to adequately safeguard children and others.

4.13.3.11 Utilities

Taking into account the other development projects planned on Main Post in the foreseeable future and described above in Section 4.13.2, no potential cumulative impacts on the utilities systems serving the Main Post (ROI) are anticipated from implementing the RCI preferred alternative. The utility demands anticipated for continued operation of the housing communities and other Main Post facilities and the Army's planned development of new housing and facilities would be met by existing capacities and potential expansion of the utilities systems serving Main Post, which are owned and operated by Doyon. The assumption is that Doyon and Actus lend Lease would coordinate any necessary changes to utilities systems during the five-year RCI development period (2009 to 2013). Also, in implementing the RCI, Actus Lend Lease would strive to achieve a gold rating under the SPiRiT process and LEED H and Five-Star Energy Star Requirements; thus, efficiencies are anticipated in the use of some of the utilities with the preferred alternative, such as potable water, electricity, and heating.

4.13.3.12 Hazardous and Toxic Substances

Cumulative effects from the proposed project and the projects listed above would have an adverse impact if disposal facilities experienced short- or long-term capacity limitations as a result of the volume of construction and demolition debris requiring disposal. However, because the timelines of the proposed project and the projects listed above are distributed over multiple years, cumulative impacts are expected to be less than significant.

Moderate beneficial cumulative effects also are expected from remediating contaminated sites associated with projects at Fort Wainwright. In accordance with the FFA, the Army, in coordination with the ADEC and the EPA will continue its remedial efforts for contaminated sites on the installation, including those near and next to the RCI footprint. Remediation of these sites would decrease the potential for exposure for residents of the family housing areas.

4.14 MITIGATION SUMMARY

Mitigation actions would be expected to reduce, avoid, or compensate for most adverse effects. The proposed action would be in compliance with environmental regulations and installation plans, policies, and guides. Table 4-14 is a summary of the mitigation measures that would be implemented as part of the proposed action to minimize effects on affected resources.

Table 4-14
Summary of Mitigation Measures

Aesthetics and Visual Resources

- New units and community center would be designed to complement existing units and structures.
- Lighting for the new units and facilities would use proper outdoor lighting design features, such as shrouding outdoor lights to keep light from illuminating unnecessary areas and equipping outdoor lights with motion detectors, where practical, to provide light only when necessary.

Noise

- The Army would limit construction to normal business hours.

Geology and Soils

- Army Alaska Family Housing would prepare and implement a SWPPP identifying appropriate BMPs to reduce nonpoint pollution, including discharge of sediment during construction.
- Army Alaska Family Housing would conduct soil surveys and subsurface investigations at the proposed sites to determine the presence of permafrost. If permafrost is present, these explorations would determine if it is thaw-stable or thaw-unstable, would identify the type of soil present, and would determine the best method to reduce the adverse effects on permafrost.

Water Resources

- Army Alaska Family Housing would comply with all regulatory requirements, including preparing and implementing an SWPPP that would include BMPs developed to minimize potential impacts from increased runoff.

Biological Resources

MBTA Species

- Whenever possible, seasonal work windows would be used to ensure that no migratory birds are harmed during development actions. To the greatest extent practicable, clearing vegetation from May 1 to July 15 would be avoided. Every practicable attempt would be made to begin clearing vegetation before May 1 to reduce the risk of take; or
- If seasonal windows could not be avoided, a qualified biologist would conduct surveys immediately before and during project activities. If surveys occur within the breeding season (February through August), the following additional measures would be undertaken:
    - Survey the project site boundaries just before clearing and flag any visible migratory bird nests, including any ground nests of birds protected by the MBTA, so the equipment operators can avoid disturbing the nest or the vegetation holding the nest. The birds would be left undisturbed until the young fledge;
    - During clearing, the equipment operator would pay attention and avoid any visible

Table 4-14
Summary of Mitigation Measures

nests or birds;

- o A 100-foot radius exclusion zone around the nest would be demarcated by fencing. If unoccupied or partially constructed nests of MBTA birds are discovered, the nests would be removed by, or under the direct supervision of, a qualified biologist;
- o If surveys reveal nesting birds protected by the MBTA in buildings proposed for demolition, the nests would be avoided and the birds would be left undisturbed until the young fledge;
- o If unoccupied or partially constructed nests of MBTA birds are discovered, the nests would be removed by, or under the direct supervision of, a qualified biologist. If birds begin establishing nests within buildings to be demolished, the nest materials would be removed in accordance with MBTA guidelines and with a permit as needed to deter further nest establishment; and
- o If migratory birds or their protected nests were found and could not be avoided, the Army would consult with the USFWS to address any takes before disturbing the birds or their nests.

Cliff Swallows

- Use proactive deterrents as the most effective way to decrease the possibility of affecting nesting birds. A proactive management system should be put in place to remove nests being constructed before they become occupied. When possible, Army Alaska Family Housing would remove nests or nest materials before migration starts and maintain these clean areas.
- Check buildings each spring in mid-April. Any small openings would be covered to bar entry to nesting birds. All stovepipes and dryer vents would be checked regularly and covered when not in use to prevent birds from nesting. Screening also could be used to discourage nesting. If nesting could not be prevented, then the established nest would be left in place until the chicks fledge and adult birds leave the nest.
- Design buildings to take into account the propensity for cliff swallows to nest under the eaves of housing and the tendency of birds to return to established nests. Structural design features include making sure to minimize sharp angles, reduce overhangs or squared off corners as much as possible, or use an additive to the building materials that emulates “slime,” discouraging birds from nesting. Several commercial products are also available to prevent nests from being established, including nets, spikes, electric or ultrasonic emissions, various repellents, sloping devices, traps, and wires. These products would only be used when no established and occupied nests are present.
- Use an education program using Fort Wainwright’s educational materials to establish active wildlife management to anticipate and avoid potential impacts. Educational material disseminated in the installation publication as well as posted in public areas would support management.
- Use, where practicable, the following Boreal Partners in Flight Working Group guidance:
  - o Use preventive measures and a proactive approach as the most efficient and simple way to deal with the nesting birds;
  - o Prevent nesting between first arrival to July 15;
  - o Do not remove nests until all signs of occupancy are gone;
  - o Monitor any and all areas that will be of importance between first arrival and July 15 for nest construction;
  - o Remove nest constructions while being built. If in doubt of occupancy, leave nest or consult with USFWS experts to assess;
  - o Continue monitoring and proactive measures until July 15; and
  - o Consider obtaining materials to prevent nesting if monitoring is lacking.

Table 4-14
Summary of Mitigation Measures

Other Colonial Migratory Bird Species

- Army Alaska Family Housing would cover with plastic sheeting any large mounds of dirt piled and unused for long periods.

Bald and Golden Eagles

- Survey the project site boundaries immediately prior to any clearing and flag any visible eagle nests so the equipment operators can avoid disturbing the nest or the vegetation holding the nest. The birds would be left undisturbed until the young fledge; and
- If an inactive bald or golden eagle nest is suspected within the footprint of the project, consider moving the project 660 feet away from the nest site.

Cultural Resources

- Implement the requirements of the PA.
- The Army would ensure that the design of the proposed facilities would be developed in accordance with the North Post/Ladd Field Distinguishable Area Design Guidelines.

Socioeconomics and Environmental Justice

- During construction, safety measures would be followed to protect the health and safety of residents, especially children.

Transportation

- Monitor traffic levels on affected roadways and delays at affected intersections and take appropriate actions to minimize development-related traffic, such as requiring development-related vehicles to use alternate access gates, designated travel routes, and off-peak travel times.
- To help reduce risks to children and to minimize the potential for pedestrian and vehicle accidents and to maximize safety and awareness for those in the affected community areas, the following actions are recommended:
    - Alerting residents when construction- and demolition-related activity and traffic are planned to be in their areas, including distributing and posting construction and demolition schedules;
    - Requiring construction and demolition vehicles to use flashing lights and possibly auditory warning devices when traveling through areas where children are present;
    - Stationing crossing guards at selected intersections and play areas at certain times to adequately safeguard children and others; and
    - Preparing and distributing a comprehensive traffic routing and pedestrian protection plan before demolition and construction begin in the neighborhoods. The plan preparation would include input and representation from residents in the affected communities and other knowledgeable personnel from Fort Wainwright.

Hazardous and Toxic Substances

- Army Alaska Family Housing would notify workers of any potential health hazards, and the workers would use proper health and safety measures. Also, Army Alaska Family Housing would employ personnel trained and certified by the OSHA for any activities potentially involving exposure to hazardous substances.
- Army Alaska Family Housing would use BMPs, such as secondary containment, fencing, and signs, to ensure that workers and residents were not exposed to hazardous materials and that hazardous materials are not released to the environment.

Table 4-14
Summary of Mitigation Measures

- Persons working with or near fresh paint and asphalt would protect themselves by wearing appropriate clothing, washing their hands before eating or smoking, and bathing at the end of each workday.
- The construction contractors would be responsible for preventing paint and fuel spills by properly storing and handling these materials, paying attention to the task at hand, and driving safely.
- Construction sites would be fenced and access would be properly controlled in order to prevent residents, particularly children, from entering these sites.
- Pursuant to the FFA, the Army, in coordination with the ADEC and the EPA will perform remedial actions necessary for the property to be safe for residential use and establish institutional and land use controls that Army Alaska Family Housing, and by extension its subcontractors, workers, and customers/residents, would adhere to.
- Portions of active remediation sites where residents, particularly children, could come into contact with contaminants would be fenced or otherwise controlled.
- In the event that a new potentially-contaminated site is identified, appropriate interim controls would be immediately implemented in the potentially-affected area to prevent resident exposure.
- Army Alaska Family Housing, and by extension its subcontractors, workers and customers/residents, would comply with all relevant engineering, land use and institutional controls as well as other requirements from the applicable ROD. For example, Army Alaska Family Housing would comply with requirements for dig permits, worker certification, and notification requirements.
- Army Alaska Family Housing would coordinate with Army safety personnel for any construction in areas that potentially contain MEC. All individuals involved in ground-disturbing activities in the affected areas would receive MEC familiarization training. If applicable, certified unexploded ordnance technicians would oversee ground-disturbing activities. In the event that MEC or suspected MEC is discovered on the RCI footprint, all intrusive or ground-disturbing activities would cease, and the Fort Wainwright Provost Marshall's Office would immediately be notified. The MEC or suspected MEC would not be disturbed in any way until qualified personnel could dispose of it.
- The Army would conduct a comprehensive survey of lead levels in soil in all family housing areas where structures existed prior to 1978 and where exterior LBP could reasonably be expected to have come into contact with soil. Based on the results of the survey and applicable regulations, appropriate abatement measures would be implemented.
- Prior to the lead in soil survey and abatement, ground cover would be maintained to prevent human contact with bare soil. Where vegetative ground cover is not in place, bare soil would be covered with a thick layer of wood chips, sand, top soil or other appropriate materials. Snow and ice also provide a natural impediment to soil contact during part of the year. Residents would be informed of the potential for elevated soil lead levels and provided a fact sheet detailing methods to protect children from exposure. The Bassett Hospital would test the blood-lead levels of children as requested by parents and guardians.
- Army Alaska Family Housing would comply with Fort Wainwright’s integrated pest management plan, which, among other provisions, forbids applying pesticides on playgrounds, wetlands, and surface water bodies and keeps application to a minimum in other sensitive areas.
- Buildings would be equipped with radon vapor ventilation systems.
- Establishing dedicated smoking areas and prohibiting open flames near flammable materials would greatly reduce the risk of fire.

SECTION 5.0
FINDINGS AND CONCLUSIONS

5.1 INTRODUCTION

The EA identifies, documents, and evaluates the potential environmental effects of implementing the Army RCI project and the no action alternative at Fort Wainwright. Section 4.0 describes existing environmental conditions at the family housing areas that could be affected by the proposed action and identifies potential environmental effects that could occur if the alternatives were implemented. The following resources were addressed in Section 4.0:

- Land use;
- Aesthetics and visual resources;
- Air quality;
- Noise;
- Geology and soils;
- Water resources;
- Biological resources;
- Cultural resources;
- Socioeconomics and environmental justice;
- Transportation;
- Utilities; and
- Hazardous and toxic substances.

The following sections summarize the findings and conclusions regarding the potential environmental effects of the proposed action.

5.2 FINDINGS

Figures in Section 4.0 depict environmental considerations associated with the RCI housing areas. Table 5-1 summarizes the predicted effects for each resource area from both the proposed action and the no action alternative.

As shown in Table 5-1, implementing the proposed action would result in a combination of adverse and beneficial impacts, which are further described in the section below.

Table 5-1
Summary of Potential Environmental and Socioeconomic Consequences

Resource	Environmental and Socioeconomic Consequences	
	Proposed Action	**No Action Alternative**
Land use	Short-term none, long-term minor beneficial	None
Aesthetic and visual resources	Short-term minor adverse, long-term negligible adverse, long-term minor beneficial	None
Air quality	Short-term minor adverse, long-term none	None
Noise	Short-term minor adverse, long-term none	None
Geology and soils		
• Geology and physiography	None	None
• Fault rupture zones and geologic hazards	Minor adverse	Long-term minor adverse
• Soils	Minor adverse	None
• Prime farmland	None	None
• Mineral resources	None	None
Water resources		
• Surface water	Minor adverse	None
• Groundwater	None	None
• Water quality	Minor adverse	None
• Floodplains	Minor adverse	None
Biological resources	Minor adverse with mitigation	None
Cultural resources	Minor adverse with mitigation	None
Socioeconomics and environmental justice		
• Regional economic activity	Short-term minor beneficial, long-term none	None
• Housing	Minor beneficial	Long-term minor adverse
• Quality of life	Minor beneficial	Long-term minor adverse
• Environmental justice	None	None
• Protection of children	Short-term minor adverse and long-term minor beneficial	Long-term minor adverse
Transportation	Short-term minor adverse with mitigation	None
Utilities	Short-term minor adverse, long-term minor beneficial	None
Hazardous and toxic substances		
• Construction activities	Short-term minor adverse	None
• Site contamination and cleanup	Minor adverse with mitigation	Minor adverse
• MEC	Minor adverse with mitigation	Minor adverse
• PCBs, ACM, and LBP	Long-term minor beneficial	Minor adverse
• Lead in soils	Short-term minor adverse, long-term minor beneficial	Minor adverse
• Pesticides	None	None
• Radon	Long-term minor beneficial	Minor adverse
• Other conditions of concern	None	None

5.2.1 Consequences of the Proposed Action

Land Use. No adverse effects on surrounding land use are expected because use of this land for housing and community facilities would be compatible with surrounding land use and with FNSB's planning and zoning. Long-term minor beneficial effects on installation land use are expected with the implementation of the proposed action. New development would be compatibly integrated with existing built and undeveloped areas.

Aesthetics and Visual Resources. Short-term adverse impacts on the visual character or quality of the RCI parcels from work activity and equipment are limited to the duration of renovation, demolition, and construction and to those affected portions of the installations. Once renovation, demolition, and construction were finished, there would be long-term beneficial impacts on the visual character and quality of the RCI footprint and surrounding areas because the proposed action would improve or replace aging units and would improve the look and feel of an area by balancing the aesthetic between the built and natural environment. After renovation, demolition, and construction, the new and renovated units and ancillary supporting facilities would have long-term negligible adverse impacts on scenic vistas and light and glare.

Air Quality. Criteria pollutant emissions associated with the proposed action are considered minor, and no formal CAA conformity determination is required. The expected GHG emissions that would be produced by the proposed action would be temporary and are too small an increment of statewide GHG emissions to be considered significant. No long-term changes in emissions from housing occupancy or vehicle travel are expected as a result of the proposed action.

Noise. Because Most of the RCI footprint is more than a mile from the installation boundaries, construction and demolition would have little or no noise impact on sensitive land uses (including residential and educational) in Fairbanks. The Army would limit development activities to normal business hours, so noise generated during those activities would be temporary and minor. Over the long term, no adverse noise impacts are expected.

Geology and Soils. Because the proposed action involves ground disturbance at depths that would not change the geological formations within the project footprint, no effects to geology are expected. Seismicity impacts could be adverse, but the proposed RCI development would be constructed to current building code standards, so the effects would be minor. Conducting soil surveys and subsurface investigations and implementing the most appropriate construction methods for the soil characteristics and the potential presence of permafrost would ensure that soil effects are minor adverse. Because there are no prime farmlands within the RCI footprint, no impacts are expected. There are no valid or existing mineral location claims or mineral leases on Fort Wainwright lands, so no impacts on mineral resources would result from the proposed action.

Water Resources. Implementing BMPs would ensure that only minor erosion impacts and associated impacts on receiving waters in the Fort Wainwright area would occur. Army Alaska Family Housing would ensure that no wastewater or effluent is discharged from the site in a manner that would contaminate soils, streams, or other bodies of water. There would be no effects on groundwater supplies or interference with groundwater recharge from the proposed action, nor would it interfere with seepage flow to nearby streams, so it would not result in an impact. The effects of the proposed action on groundwater quality are minor adverse from construction. Most of the RCI footprint is within the 100-year floodplain of the Chena and Tanana Rivers, but there are no practicable alternatives to locating the proposed action in a

floodplain. In addition, the proposed project site is protected by levees, swales, and melt channels and is part of the Chena River Flood Control Project. The flood control project eliminates or minimizes potential risks of flood loss and lessens the impact of floods on human safety, health, and welfare.

Biological Resources. No special status species occur within the ROI, except for MBTA species. Nesting MBTA species could be significantly affected by demolition and renovation. Mitigation measures would be implemented to reduce anticipated effects to minor adverse. Because operational activities would be substantially the same as now, there would no operational impacts on biological resources.

Cultural Resources. Potentially significant impacts on cultural resources from renovating Building 1048 would be reduced to minor adverse by implementing the PA. Also, the Army would ensure that the design of the proposed facilities would be developed in accordance with the North Post/Ladd Field Distinguishable Area Design Guidelines.

Socioeconomics. Employment and regional spending would increase during the development period, and there would be no population changes. Long-term minor beneficial effects on Fort Wainwright family housing are expected. The RCI program would improve the condition and aesthetic appeal of family housing through revitalizing and constructing new units. The overall quality of life for Soldiers and their families at Fort Wainwright would be improved by implementing the RCI program because of the improved condition of on-post family housing, as well as the overall residential community. There would be no disproportionately high or adverse human health or environmental effects on minority or low-income populations as a result of implementing the proposed action. Short-term minor adverse and long-term minor beneficial effects on protection of children are expected. In the short term, construction sites at Fort Wainwright could pose a potential safety hazard to children. Long-term beneficial impacts are expected due to a reduction in exposure to hazardous materials that may be present in the old housing.

Transportation. Although it is not possible to accurately predict the level of impact from project traffic increases during the periods of peak development, overall impacts of increased traffic on affected roadways from the increases in development-related vehicles are expected to be minor. In those neighborhoods where development-related vehicle routes may pass through or near residential areas where children may be at play, the risk to children and other pedestrians is considered moderate to high because of the narrow streets in the residential areas and the potential for children to be distracted by play. Safety measures would be implemented to reduce these impacts to minor adverse.

Utilities. Because there are sufficient capacities in the utility systems serving Main Post to sustain the existing and foreseeable number of residences, no appreciable impacts on utilities are anticipated. The reduction in family housing demand for utilities associated with the increased efficiency of new housing units would have a beneficial impact on those utility systems. Because the increase in solid waste would not exceed the capacities of the affected landfills, impacts would be minor adverse.

Hazardous and Toxic Substances. The use of hazardous materials during development would increase the potential for releases to the environment and for worker and resident exposures. Impacts would be minor because proper hazardous materials management practices would be observed. PCBs, POL, TCE, pesticides, solvents, lead, and MEC have been released to soil and groundwater on portions of the RCI footprint. Impacts from these releases would be minor

adverse because the Army would remediate all contamination before the affected properties are occupied. Residual contamination, or concentrations of contaminants below the relevant action threshold, may remain on the property after all remedial actions are completed. In the event that MEC is discovered on the RCI footprint, it would not be disturbed in any way until qualified personnel could dispose of it. By implementing appropriate MEC measures, minor adverse impacts are expected. Long-term minor beneficial effects are expected to result from removing hazardous materials from housing units. Residents, including children, could be exposed to existing lead in soils. Potential long-term beneficial impacts would result from removing lead-contaminated soils, if necessary, from family housing areas. No adverse impacts are expected involving pesticides. Long-term minor beneficial impacts are expected from incorporating radon ventilation systems because they would further reduce radon levels in family housing units.

5.2.2 Consequences of the No Action Alternative

Only those resources affected by the no action alternative are discussed below.

Geology and Soils. Long-term minor adverse effects on seismicity and geologic hazards are expected. Facilities at the project site were designed to past, possibly less stringent, standards than are currently required, so seismic events could adversely impact them.

Socioeconomics. Long-term minor adverse effects are expected. Continuation of family housing programs as they are at present would perpetuate deficiencies in quality of life for many Soldiers and their dependents. Long-term minor adverse effects on the protection of children are expected. As homes deteriorate, the risk of children being exposed to hazardous materials (for example, from chipping LBP or asbestos from cracked asbestos tiles) would increase.

Hazardous and Toxic Substances. Minor adverse effects could occur. Due to the extensive maintenance backlog and budget constraints, it is possible that Army family housing units containing special hazards, such as LBP, ACM, and possibly PCBs in older lighting ballasts, could deteriorate to the extent that those substances would pose health risks to occupants and, in the case of exterior LBP, be released to the environment. The assumption is that Fort Wainwright would continue to abate these potential hazards in accordance with applicable laws, but it would be over a much greater period than under the proposed action, so the possibility of adverse effects exists.

SECTION 6.0
REFERENCES

Adams, Brian. 2007. Environmental Protection Specialist, Environmental and Natural Resources Division, Directorate of Public Works. Fort Wainwright, Alaska. Personal communications with Emmy Andrews, Tetra Tech. July-September 2007.

ADEC (Alaska Department of Environmental Conservation). 1998. Asbestos Containing Materials. ADEC Division of Environmental Health, Solid Waste Management Programs Offices, May 1998.

_____. 2005. Management of Lead-Based Paint Waste. ADEC Division of Environmental Health, Solid Waste Management Programs Offices, October 2005.

_____. 2007a. PM2.5 and Fairbanks. Division of Air Quality. Internet Web site: www.dec.state.ak.us/air/anpms/as/pm/pm2-5_fbks.htm.

_____. 2007b. Fort Wainwright Title V Operating Permit. Document. Division of Air Quality. Internet Web site: www.dec.state.ak.us/air/ap/docs/236tvp01fin.pdf.

_____. 2007c. Database Search: Contaminated Sites and Leaking Underground Storage Tanks. ADEC Contaminated Sites Program. Internet Web site: www.dec.state.ak.us/spar/csp/search/default.asp.

_____. 2008a. *Draft Summary Report of Improvements to the Alaska Greenhouse Gas Emission Inventory*. January 2008. Internet Web site: www.climatechange.alaska.gov/.

_____. 2008b. Particulate Matter Planning Process. Internet Web site: www.dec.state.ak.us/air/anpms/as/pm/pm_plan.htm.

_____. 2008c. Final 2008 Integrated Water Quality Monitoring and Assessment Report. April 1, 2008.

ADFG (Alaska Department of Fish and Game). 2006. Alaska Department of Fish and Game's Alaska Wildlife Notebook Series. Internet Web site: www.adfg.state.ak.us/pubs/notebook/notehome.php.

_____. 2008a. Fish Stocking Update. Internet Web site: http://www.sf.adfg.state.ak.us/Statewide/hatchery/index.cfm/FA/stocking.search. Accessed on November 11, 2008.

_____. 2008b. Statewide Stocking Plan for Recreational Fisheries. Internet Web site: http://www.sf.adfg.state.ak.us/statewide/Hatchery/index.cfm/FA/stocking.plan. Accessed on November 11, 2008.

Advisory Council on Historic Preservation. 2002. Armywide Capehart and Wherry-Era Housing National Historic Preservation Act Compliance. May 31, 2002.

Ajmi, Amal. 2007. Fort Wainwright, Alaska. Personal communication with Ann Zoidis, Tetra Tech Biologist. October 3, 2007.

Ballistic Missile Defense Organization. 2000. National Missile Defense Deployment. Final Environmental Impact Statement. Prepared by the US Army Space and Missile Defense Command. July 2000.

BEA (Bureau of Economic Analysis). 2007a. Regional Economic Accounts. Total Full-Time and Part-Time Employment by NAICS Industry. Internet Web site: www.bea.gov/bea/regional/reis/action.cfm.

_____. 2007b. Regional Economic Accounts. Per Capita Personal Income, Alaska. Internet Web site: www.bea.gov/regional/reis/drill.cfm.

_____. 2007c. Regional Economic Accounts. Per Capita Personal Income, United States. Internet Web site: www.bea.gov/regional/reis/drill.cfm.

BLM (Bureau of Land Management). Undated. Mining Claims and Sites on Federal Lands. P-048 BLM/WO/GI-91/002+4130+REV04.

Bureau of Labor Service. 2007. Labor Force Data by County, 2006 Annual Averages. Internet Web site: ftp://ftp.bls.gov/pub/special.requests/la/laucnty06.txt.

Burr Neely, Jr., Ronald J. 2001. Early Mining History: Fort Wainwright and Fort Greely, Alaska. CEMML TPS 01-5. Prepared by Center for Ecological Management of Military Lands, Colorado State University and Natural Resources Branch, US Army Alaska. March 2001. Internet Web site: www.usarak.army.mil/conservation/images/Cultural_Resources/Early%20Mining%20Study,%20Ft%20Wainwright%20and%20Ft%20Greely.pdf.

Buzzell, Rolfe G. 2000. National Historic Landmark Nomination Form for Ladd Field. Edited by Janet Clemens. January 3, 2000. Internet Web site: www.usarak.army.mil/conservation/images/Cultural_Resources/LADD%20FIELD%20NATIONAL%20HISTORIC%20LANDMARK%20NOMINATION.pdf.

City of Fairbanks. 2007. Frequently Asked Questions. Internet Web site: www.ci.fairbanks.ak.us/faq.php.

David Evans and Associates, Inc. 1987. Landscape Design Plan. Prepared for Fort Wainwright under the direction of Alaska and Seattle Districts, US Army Corps of Engineers.

DCCED (Department of Commerce, Community, and Economic Development). 2007a. Fairbanks North Star Borough. Economic Overview. Internet Web site: www.commerce.state.ak.us/dca/commdb/CF_BLOCK.cfm.

_____. 2007b. Fairbanks North Star Borough. School District and Schools. Internet Web site: www.commerce.state.ak.us/dca/commdb/CF_BLOCK.cfm.

_____. 2007c. Fairbanks. 2000 Population and Housing Characteristics. Internet Web site: www.commerce.state.ak.us/dca/commdb/CF_BLOCK.cfm.

_____. 2007d. Fairbanks. Economy, Employment, Income and Poverty. Internet Web site: www.commerce.state.ak.us/dca/commdb/CF_BLOCK.cfm.

_____. 2007e. Fairbanks North Star Borough. Economy, Employment, Income and Poverty. Internet Web site: www.commerce.state.ak.us/dca/commdb/CF_BLOCK.cfm.

Department of the Army. 2005. 2005 Housing Market Analysis – Final Report. Prepared by Robert D. Niehaus, Inc. August 2005.

Dick, Eric. 2007. CIV IMCOM FWA DPW. Fort Wainwright Annual Emission Summary Table for Calendar Year 2006. Provided to Amy Cordle, Tetra Tech. September 17, 2007.

Douse, Jeremy. Mr. CTR USA IMCOM. Personal communication with Ann Zoidis, Tetra Tech. October 2008.

Environmental Laboratory. 1987. US Army Corps of Engineers Wetlands Delineation Manual, Final Report, US Army Corps, Washington DC. January 1987.

EPA (US Environmental Protection Agency). 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. December 1971.

_____. 1999. Superfund. Record of Decision. EPA ID: AK6210022426. OU6. Fort Wainwright, Alaska. EPA/ROD/R10-99/036.

_____. 2006. Five Year Review Report. Second Five Year Review Report for Fort Wainwright, Alaska. Prepared by United States Army Environmental Center. September 2006.

_____. 2007. Nonattainment Status of Each County By Year. EPA 32 Green Book. Internet Web site: www.epa.gov/oar/oaqps/greenbk/anay.html.

Fairbanks, City of. 2008. Fairbanks Police Department. From Internet Web site: http://www.ci.fairbanks.ak.us/departments/police/about.htm. Site accessed on November 10, 2008.

Fairbanks Fire Department. 2007. Annual Report. From Internet Web site: http://www.ci.fairbanks.ak.us/documents/fire/Fire%202007%20Annual%20Report.pdf. Site accessed on November 10, 2008.

Fairbanks North Star Borough, Community Research Center. 2008. *Fairbanks North Star Borough, Community Research Quarterly: A Socio-Economic Review, Spring 2008, Volume XXXI, No. 1*.

FICUN (Federal Interagency Committee on Urban Noise). 1980. Guidelines for Considering Noise in Land Use Planning and Control. Washington, DC. Wyle Laboratories Acoustics Group. Internet Web site: www.wyleacoustics.com/acre.html.

FNSB (Fairbanks North Star Borough). 2005a. Regional Comprehensive Plan, Fairbanks North Star Borough. September 2005.

_____. 2005b. Comprehensive Economic Development Strategy, Fairbanks North Star Borough. June 23, 2005.

_____. 2008. School District. 2008 Fingertips facts. From Internet Web site: http://www.northstar.k12.ak.us/index.php?&i_page=17&i_docView=3706&a_action=view&m_module=document. Site accessed on November 11, 2008.

Fort Wainwright. 1997. *Fort Wainwright Transformer Inventory.* Microsoft Access Database provided by Environmental and Natural Resources Division, Directorate of Public Works. Fort Wainwright, Alaska. April 1997.

_____. 2004. *Integrated Pest Management Plan for Fort Wainwright, Alaska.* November 2004.

_____. 2007a. Morale, Welfare, and Recreation. Internet Web site: mwr.polarnet.com/birch.html.

_____. 2007b. *Fort Wainwright Lead-Based Paint Management Plan.* October 2007.

_____. 2008. *FY2007 Fort Wainwright Army Defense Environmental Restoration Program Installation Action Plan.* January 2008. Internet Web site: https://aero.apgea.army.mil/pIAP-doc/fortwainwright/fortwainwright.html.

Fosbrook, Cristal and Joseph Malen. 2008. Memorandum for Record by the US Army Garrison—Environmental Office. Review Comments on the Military Munitions Response Program, Stakeholder Draft Site Inspection Report, Fort Wainwright AK, dated November 2007. January 2008.

Gray, Bob. 2007. RCRA Program Manager and Installation Pest Management Coordinator, Environmental and Natural Resources Division, Directorate of Public Works. Fort Wainwright, Alaska. Personal communications with Emmy Andrews, Tetra Tech. July-September 2007.

Griffin, Lee. 2007. Environmental Protection Specialist, Environmental and Natural Resources Division, Directorate of Public Works. Fort Wainwright, Alaska. Personal communications with Emmy Andrews, Tetra Tech. June-September 2007.

Hakey, Phillip. 2007. US Army Corps of Engineers. Personal communication with Kelly Bayer, Tetra Tech. October 3, 2007.

Harrell, Mae. 2007. Housing Chief, Housing Office. Fort Wainwright, Alaska. Personal communications with Emmy Andrews, Tetra Tech. July-September 2007.

Harriman, Shawn. Project Manager, Glass Park Housing Construction. Fort Wainwright, Alaska. Personal communications with Emmy Andrews, Tetra Tech. July 2007.

Hart Crowser. 1997. *Asbestos Survey and Lead-Based Paint Risk Assessment, Family Housing, Fort Wainwright, Alaska.* October 30, 1997.

HUD (Housing and Urban Development). 1999. Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Property and Housing Receiving Federal Assistance; Final Rule. 24 CFR Part 35, et al. Subpart R. Federal Register Vol. 64, No. 178. Internet Web site: www.hud.gov/offices/lead/1012/1012_1013federalregister.pdf.

King, JC. 2008. Assistant for Munitions and Chemical Matters, Environmental Safety and Health, US Army. Personal communications with Emmy Andrews, Tetra Tech. November 2008.

Kiser, Connie. 2007. RCI Housing Management Specialist, Fort Wainwright, Alaska. Personal communications with Emmy Andrews, Tetra Tech. June-September 2007.

Larson, Cynthia. Chief, RCI Program, Fort Wainwright, Alaska. Personal communications with Emmy Andrews, Tetra Tech. September 2007.

Macquarie University. 2007. Address Risk Rating. Internet Web site: www.riskfrontiers.com/arr.html.

Magid, Jeff. 2008. Attorney Advisor (Environmental), Office of the Staff Judge Advocate, US Army Alaska. Personal communications with Emmy Andrews, Tetra Tech. September 2008.

Malen, Joe. 2007. Environmental Protection Specialist, Environmental and Natural Resources Division, Directorate of Public Works. Fort Wainwright, Alaska. Personal communications with Emmy Andrews, Tetra Tech. July-September 2007.

_____. 2008. Environmental Protection Specialist, Environmental and Natural Resources Division, Directorate of Public Works. Fort Wainwright, Alaska. Comments on the Draft Final EA. October 2008.

NatureServe. 2008. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, Virginia. Internet Web site: www.natureserve.org/explorer.

NRCS (Natural Resources Conservation Service). 2007a. Prime and Important Farmlands – Alaska. Internet Web site: www.ak.nrcs.usda.gov/technical/soils/soilslocal.html.

_____. 2007b. Dwellings without Basements-Fort Greely and Donnelly Training Area, Alaska. Web Soil Survey 2.0. National Cooperative Soil Survey.

Seibel, Cliff. 2007. Environmental Protection Specialist, Environmental and Natural Resources Division, Directorate of Public Works. Fort Wainwright, Alaska. Personal communications with Emmy Andrews, Tetra Tech. June-September 2007.

Seibel, Cliff. 2008. Environmental Protection Specialist, Environmental and Natural Resources Division, Directorate of Public Works. Fort Wainwright, Alaska. Personal communication with David Broadfoot and Emmy Andrews, Tetra Tech. August and October, 2008.

Shutt, David L. 2007. CERCLA Federal Facility Agreement Deliverable Document: Action Memorandum. Memorandum from David L. Shutt, US Army, to Jennifer Roberts, ADEC, and Daniel D. Opalski, EPA Region X. 2007.

SkyVector. 2007. Internet Web site: www.SkyVector.com.

The Agape Center. 2008. Alaska Hospitals. Alaska State Hospitals and Nursing Home Association. From Internet Web site: http://theagapecenter.com/Hospitals/Alaska.htm. Accessed on November 10, 2008.

Thornton, Meg. 2007. Cultural Resources Manager, Fort Wainwright. Personal communication with Julia Mates, Historian, Tetra Tech. August 30 and September 12, 2007.

_____. 2008. Cultural Resources Manager, Fort Wainwright. Personal communication with Julia Mates, Historian, Tetra Tech. August 19, 2008.

_____. 2008a. Cultural Resources Manager, Fort Wainwright. Personal communication with Julia Mates, Historian, Tetra Tech**.** October 2008

US Army. 2001. Integrated Cultural Resources Management Plan 2001-2005, US Army Alaska, Fort Wainwright and Fort Greely. Prepared by the Department of Natural Resources, Division of Parks and Outdoor Recreation, Office of History and Archaeology.

_____. 2002. *Environmental Protection and Enhancement.* Department of the Army Pamphlet 200-1. January 17, 2002.

_____. 2004. *Transformation of US Army Alaska, Final Environmental Impact Statement, Volumes 1 and 2*. US Army Alaska, Department of the Army. February 2004.

_____. 2005. Draft Real Property Master Plan, US Army Garrison, Alaska. Prepared for Directorate of Public Works, US Army Garrison Alaska. Prepared by S & K Technologies. April 2005.

_____. 2006a. Fort Wainwright Army Installation Design Guide. US Army Garrison Alaska, Fort Wainwright. Prepared by Black and Veatch. November 2006.

_____. 2006b. *Information Sheet: Fort Wainwright.* Subject: Munitions Response Sites. April 2006.

_____. 2006c. *Second Five-Year Review Report for Fort Wainwright, Alaska.* September 2006.

_____. 2008a. Utilities Privatization Contract No. SP0600-07-C-8263, between US Army and Doyon Utilities, LLC. Prepared by Defense Energy Support Center, Fort Belvoir, Virginia.

_____. 2008b. Military Spot. Fort Wainwright. Base Information. From Internet Web site: http://www.militaryspot.com/bases/fortwainwright.htm. Accessed on November 10, 2008.

US Army and ADEC. 1991. *Federal Facilities Agreement under CERCLA Section 120: Fort Wainwright.* November 12, 1991. Final Signature April 1, 1992.

US Army Corps of Engineers. 2001. *Final Installation Environmental Noise Management Plan*. US Army Engineer District, Alaska. Prepared by Montgomery Watson Harza, Anchorage, Alaska.

_____. 2007. Environmental Condition of Property for the Residential Communities Initiative at Fort Wainwright, Alaska. Prepared by US Army Corps of Engineers, Mobile District with Technical Assistance from Tetra Tech, Fairfax, Virginia.

_____. 2007. *Environmental Quality: Environmental Protection and Enhancement AR 200-1*. Headquarters, Department of the Army, Washington, DC.

_____. 2008. Chena River Lakes Flood Control Project. From Internet Web site: http://www.poa.usace.army.mil/co/chena/ch/detailh.htm. Site accessed on: November 17, 2008.

US Army Child and Youth Services. 2008. Child and Youth Services, Fort Wainwright, Alaska. From Internet Web site: http://www.wainwright.parocys.org/index.html. Site accessed on November 11, 2008.

US Army Garrison, Alaska. 2004. *Environmental Assessment, Construct Replacement Family Housing and Revitalize Family Housing Neighborhoods, Fort Wainwright, Alaska, 2004-2010*. June 2004.

_____. 2005. Real Property Master Plan, US Army Garrison, Alaska. Report prepared by S&K Technologies for Directorate of Public Works, US Army Garrison, Alaska. April 2005.

____. 2005b. North Post/Ladd Field Distinguishable Area Design Guidelines, Fort Wainwright and Fort Richardson. From Internet Website: http://iss.poa.usace.army.mil/idg/ftw/chap56.htm. Site accessed on October 24, 2005.

_____. 2006. Draft Integrated Natural Resources Management Plan 2007-2011. December 17, 2006.

_____. 2007a. Environmental Assessment, Construction and Operation of a Railhead Facility and Truck Loading Complex, Fort Wainwright, Alaska. June 2007.

_____. 2007b. Environmental Assessment, Integrated Natural Resources Management Plan for US Army Garrison Alaska. January 2007.

US Census Bureau. 2000a. Fairbanks North Star Borough. Selected Economic Characteristics: 2006. Internet Web site: factfinder.census.gov.

_____. 2000b. Fairbanks North Star Borough. Census 2000 Demographic Profile Highlights. Internet Web site: factfinder.census.gov.

_____. 2000c. Alaska. Census 2000 Demographic Profile Highlights. Internet Web site: factfinder.census.gov.

_____. 2008. Poverty. From Internet Web site: http://www.census.gov/hhes/www/poverty/povdef.html. Accessed on November 11, 2008.

USACE and ACSIM (US Army Corps of Engineers and US Army Assistant Chief of Staff for Installation Management). 2002. Sustainable Project Rating Tool (SPiRiT), Version 1.4.1. June 2002.

USAG-AK (US Army Garrison-Alaska) GIS. 2007. Map: Restoration Sites on Fort Wainwright, Alaska. May 23, 2007.

US Environmental Protection Agency (EPA). 2008. Arsenic in Drinking Water. From Internet Web site: http://www.epa.gov/safewater/arsenic/index.html. Site accessed on November 14, 2008.

USFWS (US Fish and Wildlife Service). 2007. Letter from Ted Swem, US Fish and Wildlife Service. September 19, 2007.

USGS (United States Geological Survey). 2003. Earthquakes in Alaska (map). Peter J. Haeuessler and George Plafker.

_____. 2007a. Earth Quake Hazard Program. Magnitude 6.7 Central Alaska . 2002 October 10 11:27:18 UTC. Internet Web site: neic.usgs.gov/neis/eq_depot/2002/eq_021023/.

_____. 2007b. Seismic Hazard Map.

US Global Security. 2008. Fort Wainwright. From Internet Web site: http://www.globalsecurity.org/military/facility/fort-wainwright.htm. Site accessed on November 7, 2008.

Vincent, Todd. 2008. Water Treatment Plant Operator at Fort Wainwright. Personal Communication with Rima Ghannam at Tetra Tech, Inc. on November 14, 2008.

Weeks, Kay D., and Anne E. Grimmer. 1995. The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. Prepared for US Department of the Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Heritage Preservation Services. Washington, DC.

White, Trevor. 2007. Master Planner, Fort Wainwright. Personal communication with Kelly Bayer, Tetra Tech. September 20, 2007.

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APPENDIX A
Community Development and Management Plan
Development Brief

FORT WAINWRIGHT MHPI PROJECT

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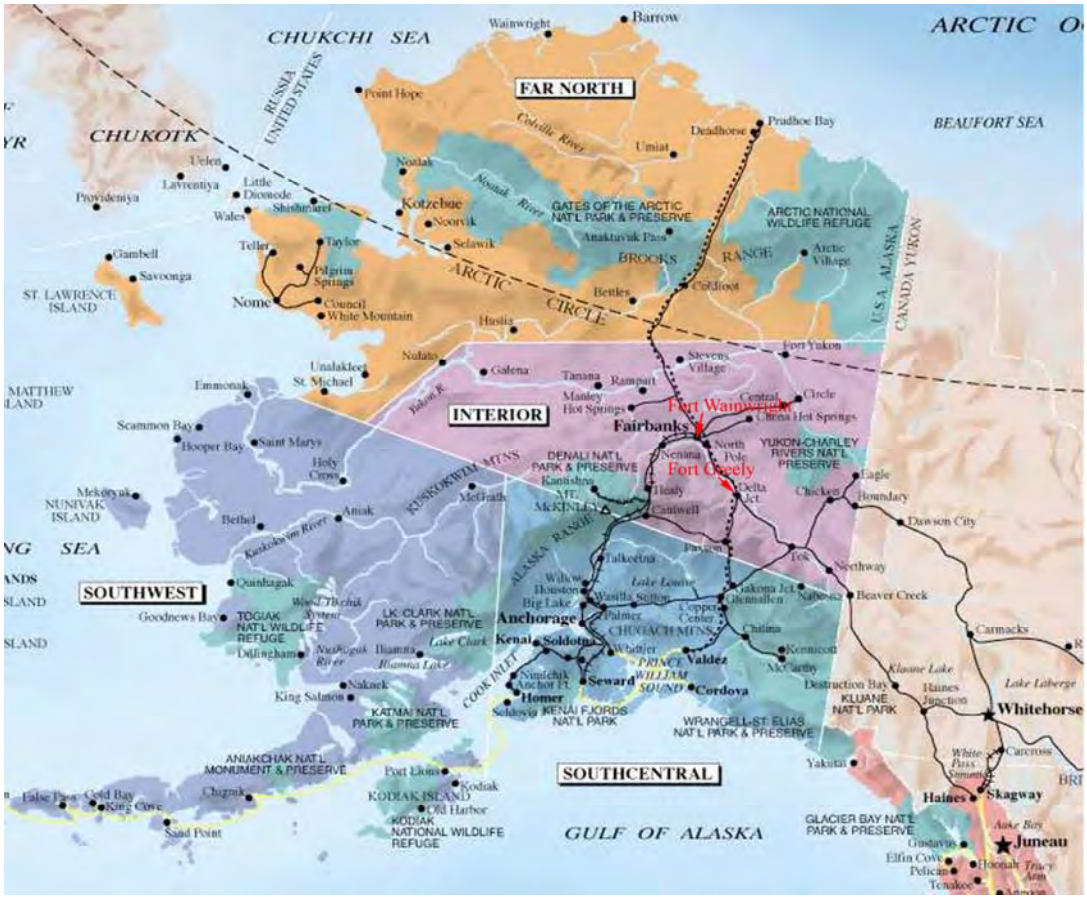
COVER LETTER

WAINWRIGHT MHPI PROJECT

PURPOSE OF THE PROJECT

The Department of the Army has deemed it necessary to improve the quality of on-post housing and communities currently provided to Soldiers and their families at Fort Wainwright (map shown below). At this installation, existing Army Family Housing (AFH) does not meet current housing standards and there is a deficit of adequate / affordable housing off-post. The army has considered a wide range of alternatives to address the persistent funding shortfall and resulting revitalization (construction and major maintenance and repair) backlog. This shortfall is the backlog of work needed on existing units to bring them up to current standards. During the mid-1990's, studies by several agencies (e.g., Marsh Quality of Life Task Force, Army Science Board, Congressional Budget Office (CBO), the General Accounting Office (GAO), and others) all came to the same conclusion that family housing could not be revitalized using only the traditional Military Construction (MILCON) Program.



In 1996, the Military Housing Privatization Initiative Act (MHPI) (10 ISC 2871, et. Seq) provided the military Services with the authority to leverage scarce funds and assets to obtain private sector capital and expertise to operate, manage, maintain, improve and build military housing in the United States. The Army's housing privatization program, known as the Residential Communities Initiative (RCI), is an essential element for solving the Army's acute family housing problem, along with traditional the MILCON Program and Basic Allowance for Housing (BAH) increases.

This innovative program was developed and is managed under the oversight and direction of the Office of the Assistant Secretary of the Army (Installations and Environment), (OASA-I&E) on behalf of the Secretary of The Army. RCI leverages private sector expertise and resources and market-based incentives to improve the quality of life for soldiers and their families.

Under the RCI Program, the Army plans to privatize family housing. The Fort Wainwright family housing privatization is intended to promote high-quality family housing units within the military member's Basic Allowance for Housing (BAH).

The United States Department of the Army is proposing to partner with the private sector for the purpose of improving and operating the military family housing community, utilizing applicable legislative authorities and the provisions of The Army's RCI Program.

NOTE: Fort Wainwright is part of the Environmental Protection Agency's (EPA) Superfund Program and is listed on the EPA's National Priorities List (NPL). Remediation and control at Fort Wainwright are functioning as intended by EPA.

RCI PROJECT VISION AND GOAL

Vision:

Recognized in providing Fort Wainwright soldiers and families with quality housing communities in which to live flourish and succeed, a partner-installation and unified community, resident-focused, and postured into the 21st Century.

The RCI project will deliver high quality family housing residential communities that foster family lifestyles.

Community design techniques will produce effective solutions that appeal to residents, improve the curb appeal of the existing housing areas and deliver multiple opportunities for recreational and community activities.

Community design standards will result in timeless communities that meet the complex demands of the Army's culturally diverse families.

Resources will be optimized to meet the established priorities of upgrading communities and improving the quality of life for housing residents.

Goals:

Community

The RCI communities will be designed to foster a sense of pride in the local communities.

Residents will feel safe walking through their community, day or night.

The internal circulation system of the communities will accommodate pedestrian and vehicular traffic in a harmonious manner.

Green and open spaces will be used to serve as both recreational opportunities and connective links from one housing area to another.

Community centers, recreational facilities and other amenities will be integrated into the communities and will serve as focal points of the communities.

The architectural and historic character of all historic housing will be preserved and maintained in accordance with the National Historic Prevention Act.

ANALYSIS OF NEED

Current Housing

The Department of the Army has conducted an Installation Status Report (ISR) for Fort Wainwright.

In summary the Army's assessment of existing housing at Fort Wainwright indicated that 507 of the units were in a state that mandated the demolition of these homes. Additionally there were 377 units at Fort Wainwright whose condition was sufficiently deteriorated that it was deemed more efficient to demolish and rebuild than to conduct a major renovation.

Housing Need

In addition to assessing the housing currently on post the Army has conducted a Housing Market Analysis.

At Fort Wainwright the projected end state number of units at the completion of the proposed development is 1,689, which is 149 units more than will be initially conveyed. When considering the current MILCON Projects at Fort Wainwright which will be conveyed post close, there will actually be a reduction of 161 units. The additional housing primarily as an expectation that the post will be growing at a rate faster than the excess available suitable housing is growing off post. This expectation is discussed in greater detail later in this Summary.

1 GENERAL CDMP PROVISIONS

PROJECT OVERVIEW

The scope of the project includes Fort Wainwright in Fairbanks, Alaska. The greater Fairbanks area has an estimated population of 51,046

At project turnover from the Army to the Project Company, the Project Company will accept the following:

Fort Wainwright

- At project closing there will be 1540 units conveyed to the developer. An additional 310 units will be completed by MILCON and conveyed to the partner after the transfer of operations.
- Leased land on which the existing units are located and possibly additional lands for deficit elimination and / or replacement construction. Total land conveyed estimated to be 625.78 acres in 11 parcels. See attached.

The property conveyed will have 1 single family housing unit that lies within the boundaries of the Ladd Field Historic District. Although this unit is currently not on the National Register of Historic Places, this unit has been determined to be eligible for listing. The partner will be responsible for renovating, maintaining and managing this property as part of the family housing inventory, in accordance with preservation standards established during consultation under Section 106 of the National Historic Preservation Act.

Fort Wainwright has 748 units constructed between 1948 and 1959 that are categorized as Capehart and Wherry era housing.

DEVELOPMENT SCOPE

By capitalizing Soldier BAH revenue, Government Equity and Developer Equity, financial sources will be raised to maintain an end state of 1,689 homes. The developer plans to demolish 685 existing units, build 524 new homes and renovate/convert 321 homes at Fort Wainwright.

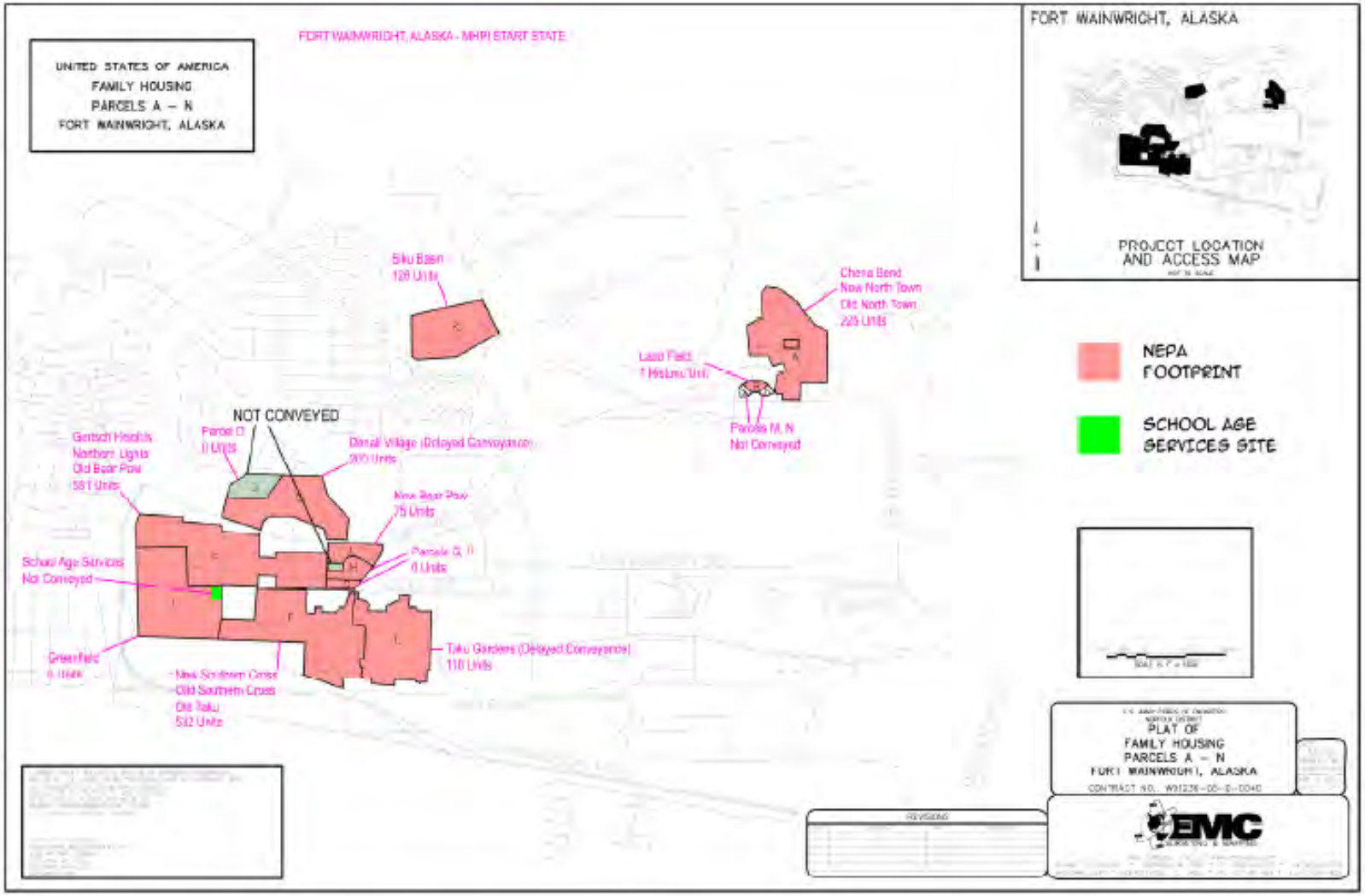
The welcome center/community center at Fort Wainwright will not exceed 10,000 square feet.

The tables and site maps for Fort Wainwright on the following pages show the composition by building type and area, comparing the start state and end state.

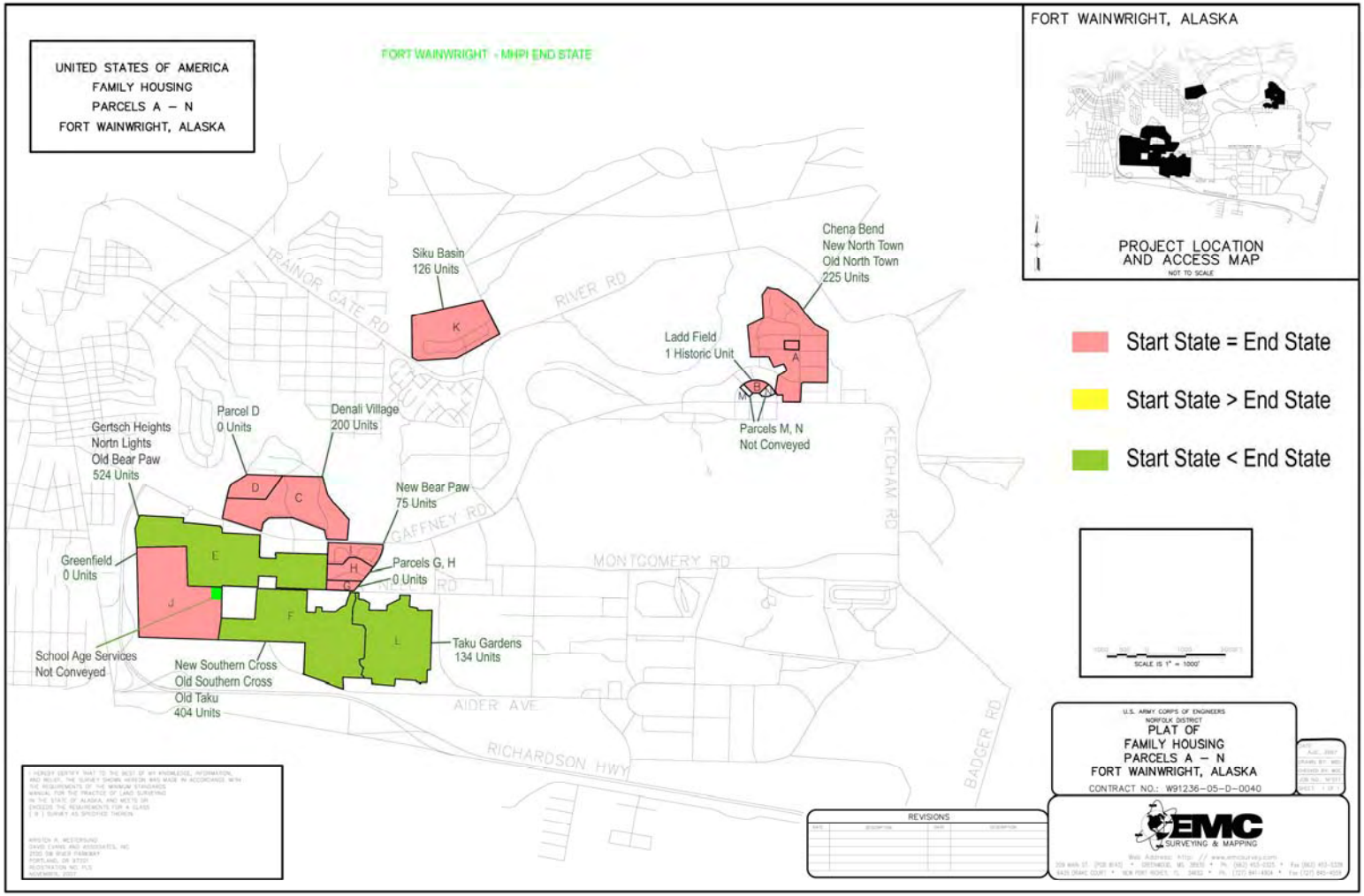
START STATE											
Area	**Parcel**	**# of Units Start State**		**Single Family Home**	**Duplex**	**Triplex**	**Quadplex**	**5-plex**	**6-plex**	**7-plex**	**8-plex**
Chena Bend	A	58		24	34						
New North Town	A	72			12	24	36				
Old North Town	A	95					60	5	30		
Old North Town - Quarters 1 Historic	B	1		1							
Denali Village	C	200					200				
Gertsch Heights	E	180			10		8		162		
Northern Lights	E	297					8	20	6	7	256
Old Bear Paw	E	104					32				72
New Southern Cross	F	67			2	33	32				
Old Southern Cross	F	388					116				272
Old Taku	F	77		3	42						32
New Bear Paw	I	75				24	36	15			
Siku Basin	K	126		2	4	12	108				
Taku Gardens	L	110			110						
Total # of Units - Start State		**1850**		**30**	**214**	**93**	**636**	**40**	**198**	**7**	**632**

END STATE

Area	Parcel	# of Units End State	Net Change in Inventory	Single Family Home	Duplex	Triplex	Quadplex	5-plex	6-plex	7-plex	8-plex
Chena Bend	A	58	0	24	34						
New North Town	A	72	0		12	24	36				
Old North Town	A	95	0				60	5	30		
Old North Town - Quarters 1 Historic	B	1	0	1							
Denali Village	C	200	0				200				
Gertsch Heights	E	212	32		10		40		162		
Northern Lights	E	212	-85				212				
Old Bear Paw	E	116	12				116				
New Southern Cross	F	67	0		2	33	32				
Old Southern Cross	F	252	-136				252				
Old Taku	F	69	-8	3	2		64				
New Bear Paw	I	75	0			24	36	15			
Greenfield	J	0	0			0	0				
Siku Basin	K	126	0	2	4	12	108				
Taku Gardens	L	134	24		134						
Total # of Units - End State		**1689**	**-161**	**30**	**198**	**93**	**1152**	**20**	**192**	**0**	**0**



FT. WAINWRIGHT NEPA FOOTPRINT



FT. WAINWRIGHT NEPA FOOTPRINT

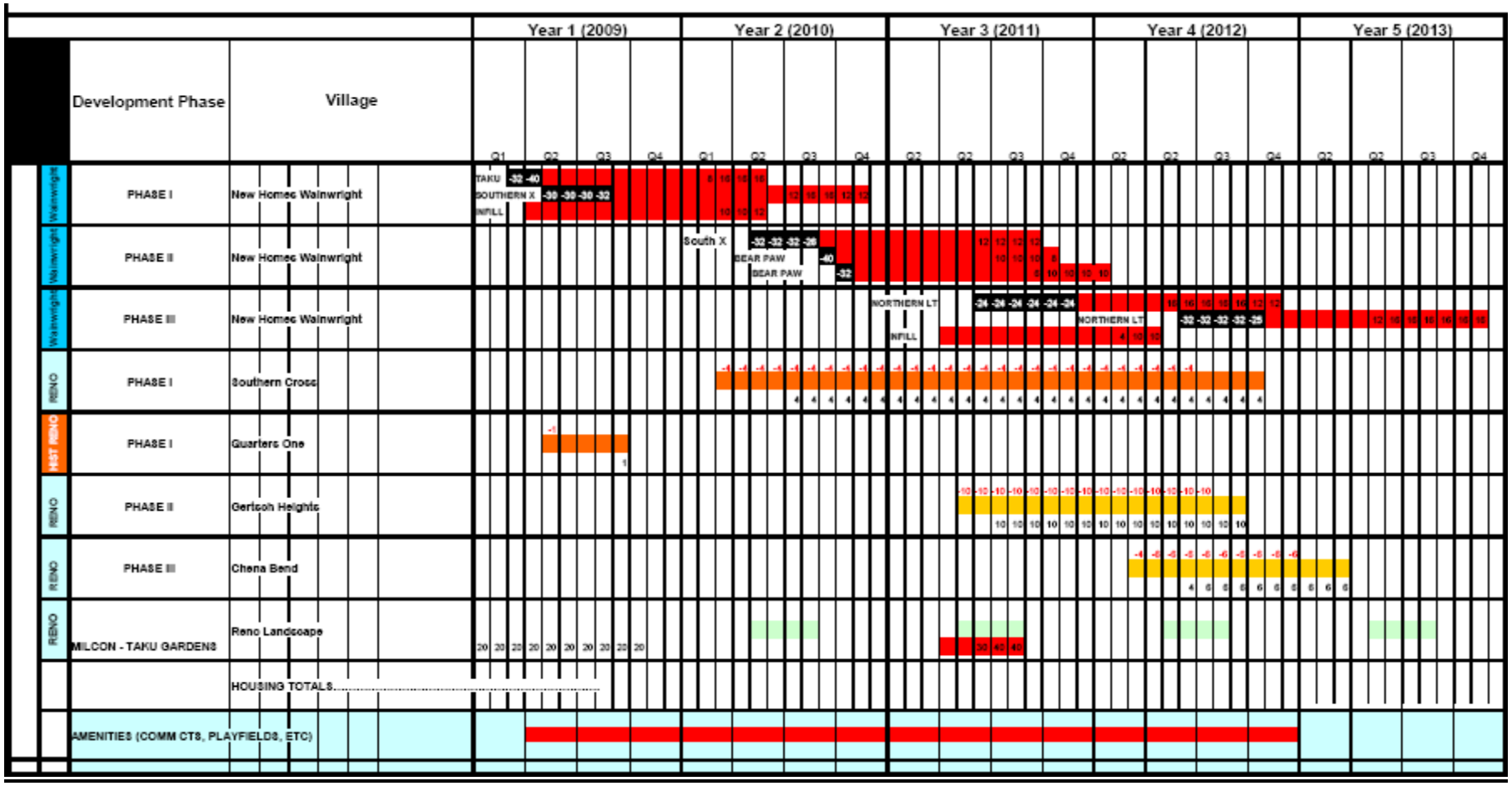
The approach to the development plan is to demolish and replace the oldest homes first and ensure that 100% of the end state homes will either be less than 20 years old or rehabilitated by the end of the Initial Development Period (IDP). The current plan calls for a minimum of 75% utilization of small businesses and 80% utilization of local businesses in Alaska.

The schedule for the development is shown on the following page. The five year IDP is a critical phase where the demonstrated experience and execution capabilities of the development team and its local partners shine. Three major aspects make up the IDP: 1) collaborating with Post and its Leadership, 2) property management transition, and 3) demolition and construction. The most important aspect will be the successful collaboration and communication between the oversight of the RCI Office and the developers' Property Management and Development Teams.

The Property Management team has the institutional knowledge, personnel experience, and energy to make a smooth transition for Fort Wainwright and Fort Greely family housing. There is a plan to market the community, sign new leases, coordinate allotments, address service requests and backlogs, and assign new housing for families at the onset of the IDP. As the Army's partner for other CDMP's, the developer has successfully coordinated all aspects of design, phasing, and construction documentation and is now implementing these plans. The ability to bring lessons learned and best practices from our other projects should inspire confidence that the developer will meet its milestone schedule concurrent with the plans in the chart to the left.

The intent is to conduct all on site grading, infrastructure and foundation work in the warmer late spring to early fall months and thereby keep production relation to vertical housing components active year long, either through the use of an onsite fabrication plant or through the use of remote fabrication and stock piling of housing components. The ultimate decision on which approach is utilized will be based on further investigation and assessing the costs, benefits and constraints of either option. It is assumed given the resource and time limitations relating to work an area like Fairbanks there will have to some work completed during the cold winter months to accommodate this aggressive schedule.

FORT WAINWRIGHT INITIAL DEVELOPMENT PLAN PHASING SCHEDULE



SUSTAINABILITY

The developer is intent on preserving 40% of the demolition materials for new streets and utility trenches. The development plan maximizes reuse of current infrastructure including home sites, streets and utilities. All new homes will utilize energy star appliances and high efficiency HVAC equipment. 100% of current appliances will be reused and 100% of the new homes will exceed Energy Star requirements. In keeping with the goal of creating energy efficient homes that work for today's Soldiers and their families, new homes will feature programmable heating controls and all new homes will be designed to meet both the LEED H Silver and Five-Star Energy Star requirements. The community center designs will incorporate wind turbines, conserving electricity and lowering energy bills.

Although there is additional "Greenfield" land offered there is currently no housing on it, the development scope will generally be limited to building in areas that currently have housing units on the property. It is intended that the developer will accept the additional land for use as a laydown and staging area for construction operations. Wetland areas located in the undeveloped parcels will not be utilized or disturbed by any development activities. In summary the overall density of the housing footprint will remain approximately the same as it currently is at Fort Wainwright. The current plan results in reduced construction refuse and precludes waste material entering local landfills. Reduced site work means fewer trucks and heavy equipment rumbling up and down streets. Please refer to the land plan on the following two pages for a visual depiction of the development and phasing plan showing areas to be developed and planned sequencing.

The developer is committed to sustaining the environment through initiatives such as the Connected Homes Program in partnership with the Army and Boston University, as well as associations with the Department of Energy's Building America Program and the Department of Housing and Urban Development's Partnership for Advancing Technology in Housing. This project will be no different as Actus has already cultivated a similar relationship with the Cold Climate Housing Research Center, a partner with the University of Alaska.

The extremes of temperature experienced in the Alaskan Interior require a different approach to living, and the developer has responded by building homes with ingenuity. The building envelope is a critical factor in energy conservation for these homes. Utilizing the technology developed by the Cold Climate Housing Research Center these homes have been designed with a "Remote Wall" system, relocating the moisture barrier membrane to the exterior of the 6" sheathed wall, then adding rigid insulation over the moisture barrier, thus creating a wall cavity that is virtually conditioned space, eliminating the frost drive commonly experienced in this climate. The arctic entry serves as an energy efficient interstitial room, keeping the cold outside air from replacing the cozy inside air.

FORT WAINWRIGHT – SOUTH – PHASING PLAN

FORT WAINWRIGHT – NORTH – PHASING PLAN

TECHNOLOGY IN HOMES

The new homes will also offer families flexibility through the technology we use. Every home will be smart-wired with CAT-6 infrastructure to accommodate the broadband transmission that we have come to rely on for everything from web browsing to online education and gaming. This flexibility will allow residents to install their own wireless internet networks for less than $50, for maximum flexibility and privacy in the home.

DEVELOPMENT CONSIDERATIONS

Housing areas will be designed to respect the existing natural systems of topography, vegetation and drainage. The majority of the housing will take full advantage of the existing above and below ground infrastructure. Development in Greenfield sites will be kept to a minimum to preserve the existing environment and minimize expensive earthwork. Existing landscape will be preserved in all possible situations. Where new landscape is planned the plant material will be selected with the goal of utilizing a minimum of 80 % native and non-invasive plant materials.

A water-management system complete with requisite retention and detention ponds will be designed to handle both quantity and quality of storm water run-off to ensure that water discharge will be minimized, and all run-off being discharged is properly treated to eliminate silt. Individual SWPP's will be developed for each construction site and will require an MS4 storm water permit to be acquired by the developer.

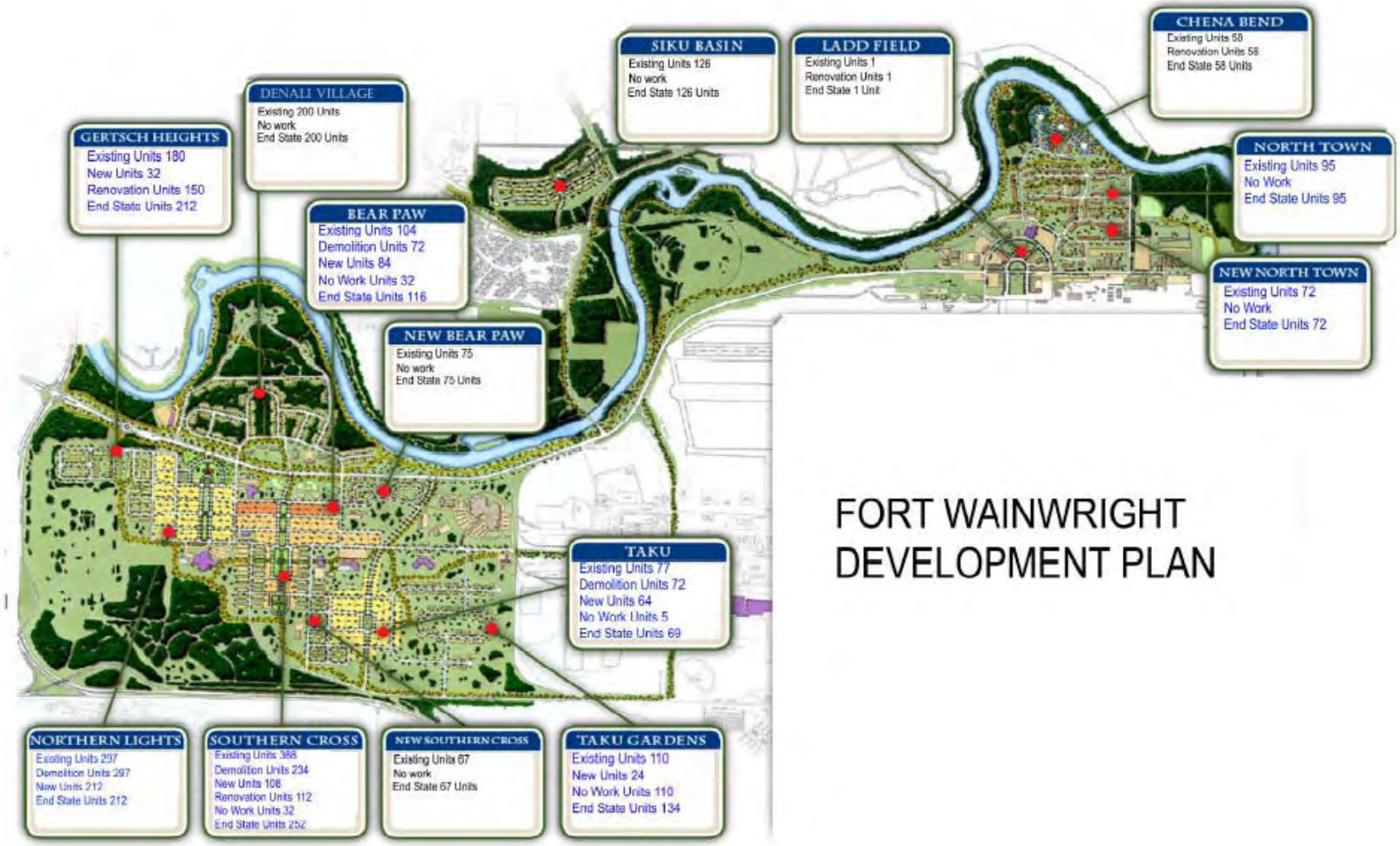
The community designs include a pedestrian friendly trail network, encouraging walking to often visited nearby structures such as schools, offices and community centers, thus reducing residents dependency on a car. Strategically located community amenities and open spaces will foster a strong sense of community. The limited number of new streets will be linked to existing streets such that the existing community continuity is not compromised but rather enhanced.

At Fort Wainwright there is anticipated to be 11 parcels conveyed totaling 625.78 acres.. A breakdown of parcels is shown below in exhibit 4. At Fort Wainwright 90.35 acres in 1 parcel which is anticipated to be conveyed which is currently undeveloped. The above parcels calculations are based on recent surveys conducted in August of 2007 and represent the largest possible areas to be considered for conveyance. During final negotiations the actual acreage conveyed at project closing may change due to development plan refinements and delayed conveyances on a number of parcels where Army contractors are currently working.

Acreage Calculations

Ref.	Parcel Ref.	Surveyed Acreage	Unconveyed Acreage (If Applicable)	Anticipated Conveyed Acreage	Developed Acreage At Conveyance	Anticipated Undeveloped Acreage At Conveyance	Planned Developed Acreage Total	Planned Undeveloped Acreage Total	Notes
1	A	80.3		80.3	80.3		80.3		Currently Developed
2	B	3.14		3.14	3.14		3.14		Currently Developed
3	C	63.61		63.61	63.61		63.61		Currently Developed
4	D	14.88	14.88						RV Park. Not to be conveyed.
5	E	114.02		114.02	114.02		114.02		Currently Developed
6	F	110.33		110.33	110.33		110.33		Currently Developed
7	G	4.58		4.58	4.58		4.58		Brownfield. No anticipated development at this time.
8	H	11.55	2.14	9.41	9.41		9.41		Hospital site currently being demolished and restored to Brownfield by the Army. No planned development at this time. 2.14 acres with admin building to be retained by Army.
9	I	14.66		14.66	14.66		14.66		Brownfield. No anticipated development at this time.
10	J	92.37	2.03	90.35		90.35	18	72.35	Greenfield. Potential Site for 11 units and possibly a 42,000 SF recreational center.
11	K	55.68		55.68	55.68		55.68		Currently Developed
12	L	79.68		79.68	79.68		79.68		Currently Developed
13	M	0.91	0.91	0					Currently Developed
14	N	1.62	1.62	0					Currently Developed
Total Acreage		**647.33**	**21.58**	**625.76**	**535.41**	**90.35**	**553.41**	**72.35**	

Below is a pictorial representation of the planned development for Fort Wainwright:



The table below lists the planned housing development actions by area at Fort Wainwright.

Housing Actions			
Village	**Housing Units**		**Notes**
Old Bear Paw	Existing Units	104	
	Demo/Conversions	72	
	New	84	
	Reno	0	
	No Work	32	
	End State	116	
New Bear Paw	Existing Units	75	
	Demo	0	
	New	0	
	Reno	0	
	No Work	75	
	End State	75	
Chena Bend	Existing Units	58	
	Demo	0	
	New	0	
	Reno	58	
	No Work	0	
	End State	58	
Gertsch Heights	Existing Units	180	
	Demo	0	
	New	32	
	Reno	150	
	No Work	30	
	End State	212	
Old North Town	Existing Units	95	
	Demo	0	
	New	0	
	Reno	0	
	No Work	95	
	End State	95	
Ladd Field	Existing Units	1	
	Demo	0	
	New	0	
	Reno	1	
	No Work	0	
	End State	1	
New North Town	Existing Units	72	
	Demo	0	
	New	0	
	Reno	0	
	No Work	72	
	End State	72	

Old Southern Cross	Existing Units	388	
	Demo	244	
	New	108	
	Reno	112	
	No Work	32	
	End State	252	
New Southern Cross	Existing Units	67	
	Demo	0	
	New	0	
	Reno	0	
	No Work	67	
	End State	67	
Northern Lights	Existing Units	297	
	Demo	297	
	New	212	
	Reno/Conversions	0	
	No Work	0	
	End State	212	
Old Taku	Existing Units	77	
	Demo	72	
	New	64	
	Reno	0	
	No Work	5	
	End State	69	
Taku Gardens	Existing Units	110	
	Demo	0	
	New	24	
	Reno	0	
	No Work	110	
	End State	134	
Denali Village	Existing Units	200	
	Demo	0	
	New	0	
	Reno	0	
	No Work	200	
	End State	200	
Siku Basin	Existing Units	126	
	Demo	0	
	New	0	
	Reno	0	
	No Work	126	
	End State	126	
Greenfield Wain.	Existing Units	0	
	Demo	0	
	New	0	
	Reno	0	
	No Work	0	
	End State	0	

All Housing Areas	Existing Units	1,850	
	Demo	685	
	New	524	
	Reno	321	
	No Work	844	
	End State	1,689	
* Denotes a new housing area where none currently exists.			

DEVELOPMENT CONSIDERATIONS OF THE PROJECT

A total of 524 new homes will be constructed during the Initial Development Period.

Our approach to new housing construction will maximize "re-use" of existing infrastructure and no new Greenfield units as well as surface improvements such as curb and gutter, roadways and sidewalks. A re-use approach such as this is cost effective and will expedite the delivery of new replacement homes by eliminating site work and foundation construction.

A net reduction of 161 housing units is planned for Fort Wainwright. An end state of 1689 units is planned. A total of 321 existing units will be renovated. A total of 844 existing units will be used "as is".

Existing landscape will be preserved in all possible situations. Where new landscape is planned the plant material will be selected with the goal of utilizing a minimum of 80 % native and non-invasive plant materials.

A water-management system complete with requisite retention and detention ponds will be designed to properly handle both quantity and quality of storm water run-off to ensure water discharge will be minimized and all run-off being discharged is properly treated to eliminate silt. Individual SWPP's will be developed for each construction site and will require an MS4 storm water permit to be acquired by the developer.

The community designs will include approximately 4 miles of pedestrian friendly trail networks, that will encourage walking to schools, offices, community centers, and other neighborhood amenities, thus reducing residents dependency on a car. Strategically located parks, playgrounds and open spaces will foster a strong sense of community.

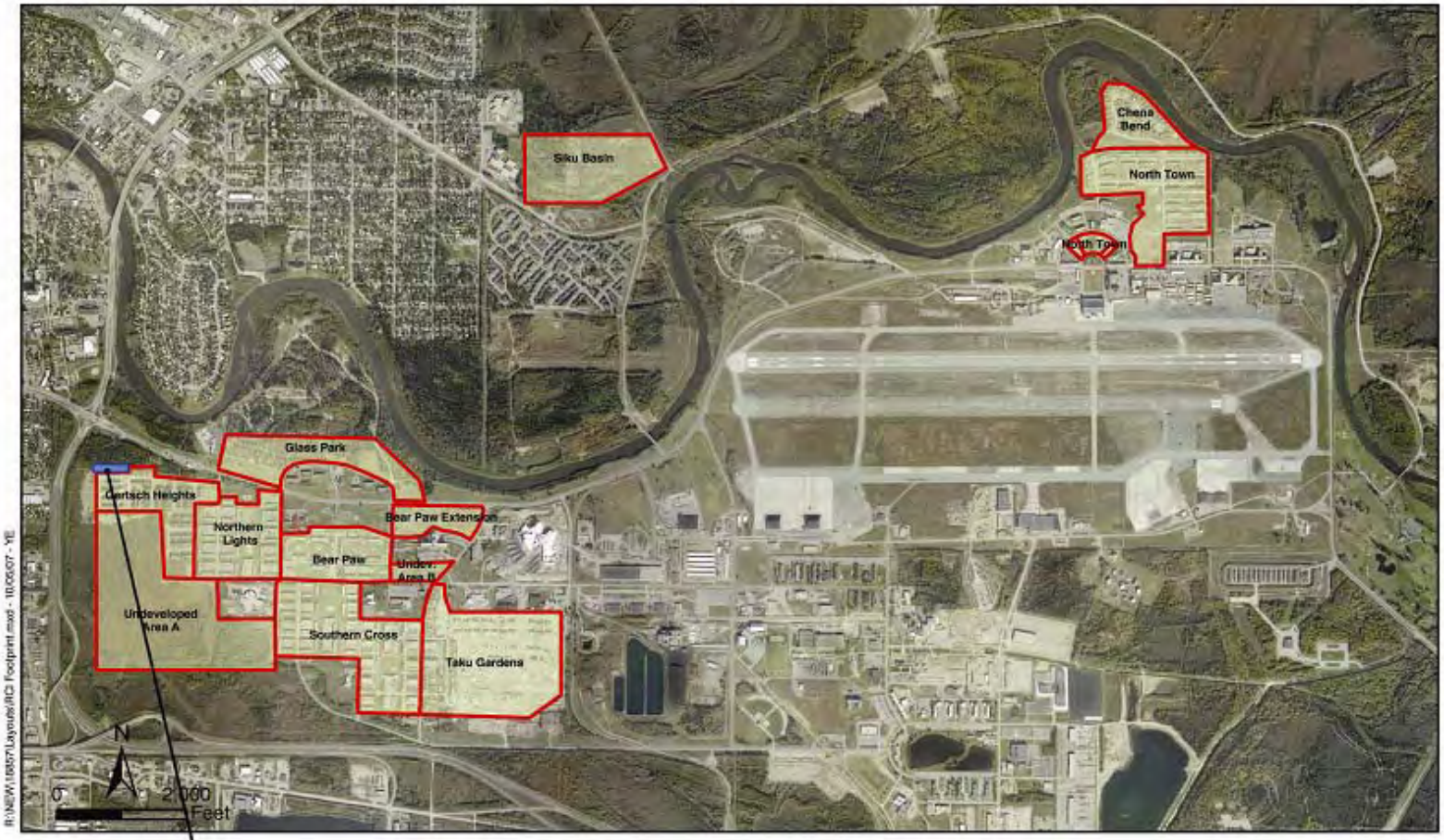
Ft. Wainwright will receive a small amount of new road in both the Northern Lights and Southern Cross neighborhoods. The new roads in Northern Lights will run provide connection from 599th street east to 600th street. The new roads in Southern Cross will run from 9th stree west connecting to the new southern cross homes. These improvements will compliment and strengthen an already functional system of roadways. The maintenance management team will repair potholes on asphalt-paved parking lots, streets or driveway surfaces (exclusive of joint use roads) within ARMY ALASKA FAMILY HOUSING LLC. All deteriorations will be repaired in a permanent manner to preserve the level of service and maintain a condition that is not detrimental to foot traffic and vehicle operation. Defects will be repaired promptly after disclosure depending on weather conditions

COMMUNITY

Given that the end state number of homes at Fort Wainwright is a net reduction there will not be an increase in the number of soldiers able to move on-post from off-post. There are no plans to build new schools on-post as part of the development plan at either installation.

As stated earlier, the development at Wainwright is a net reduction from the current number of units and therefore there is no additional school age students anticipated to be moving on-post as a result of RCI. Additionally there, are no plans to expand the existing shopping or service facilities; however there are plans to construct a new (up to) 10,000 sf welcome center/community center.

RCI FOOTPRINT



ADDITIONAL FOOTPRINT

Legend

Subject Property

Fort Wainwright RCI Footprint

Fort Wainwright, Alaska

TETRA TECH

Figure 2-3

2 *RESOURCE AREA SPECIFIC INFORMATION*

SOCIOECONOMICS

The total estimated dollars for construction is approximately $270 Million, for deconstruction $10 Million, and renovation $16 Million. The total time period for the development of project is 5 years and is anticipated to begin in March 09 and complete in Dec 13.

There will be no change in civilian employment as a result of RCI.

There will be no change in military employment as a result of RCI.

The average income of affected civilian personnel referenced above is estimated to be $37,559 installation on the mean male average income for civilians in the area from the U.S. 2000 census (inflated at 3% annually).

End State Anticipated Salaries

	Pay Grade	Rank	Estimated Rank Occupants At End State	Estimated Annual Salary In 2006 Dollars	Estimated Avg. Years of Service
	E1	JENL	26	$17,129	<2
	E2	JENL	87	$17,129	<2
	E3	JENL	184	$19,148	3
	E4	JNCO	394	$23,231	4
	E5	JNCO	395	$27,284	6
	E6	JNCO	265	$32,220	8
	E7	SNCO	79	$37,019	10
	E8	SNCO	68	$42,340	12
	E9	SGM	9	$52,362	14
	O1	CGO	35	$30,175	2
	O2	CGO	65	$43,812	3
	O3	CGO	44	$51,570	4
	O4	FGO	24	$58,201	6
	O5	FGO	8	$69,350	10
	O6	SO	6	$127,994	18
	O7	SO	0		NA
Total End State Units			**1689**	**$29,067.35**	

Average Salary Not Including BAH in 2008 Dollars
(Escalated at 2.2% for 07 & 08) Does not include basic allowance for housing).

AIR QUALITY

The approximate demolition and construction phase of the project will last 48 months, and is not anticipated to trigger any air quality permit issues or violations.

UTILITIES AND INFRASTRUCTURE

The following is a list of the water-efficient and energy efficient fixtures and equipment LEED H Silver design:

Water-Efficient Control Devices:

- Tank-less water heaters
- Low flow plumbing fixtures to include faucets and shower head
- Dual flush toilets

Energy Efficient Appliances & Fixtures:

- Energy Star certified appliances to include the refrigerator, dishwasher, microwave, and garbage disposal
- Compact Fluorescent Light Bulbs in all fixtures
- High Efficiency Furnaces
- SEER 14 condensers
- Heat Recovery Ventilators
- Electronic telemetering
- Use of Central Heating Systems
- LEED H Silver compliant homes

- Estimated potable water demand and wastewater production from new housing units.
- The Army or there Privatized Utility Provider will be responsible for the installation of new potable water delivery and sanitary sewer collection lines, and electric and natural gas lines.
- The total square footage of housing units to be deconstructed, constructed, and revitalized is approximately 823,000sf.

Planned mitigation for storm water run-off during construction phase:

Response 1 As described below under Geology and Soils Analysis and further detailed under Water and Biological Resources, a Construction Storm Water Pollution Prevention Plan (SWPPP) will be prepared that identifies best management practices (BMPs) to: minimize run-on and run-off from disturbed soils areas; prevent introduction of pollutants to runoff; slow runoff; and retain run-off, if necessary to prevent discharge of pollutants, including sediment, to adjacent streams, wetlands, or other surface water bodies. **A MS4 permit will be required and will be acquired by the developer.**

Traffic and Transportation

There is no plan for realignment, and/or closing of installation roadways and gates as a result of RCI.

GEOLOGY AND SOILS ANALYSIS

Normal practices for Storm Water Management

Preliminary Storm Water Management Plan description & design specifications (*to the extent possible*).

Response 2a A Construction Storm Water Pollution Prevention Plan (SWPPP) will be prepared in accordance with U.S. EPA and State of Alaska DEC requirements.

Response 2b None of the streams that receive storm water discharge from the project sites are subject to total maximum daily load (TMDL) limitations, so no TMDL-related restrictions will be required.

Response 2c The SWPPP will include erosion and sediment controls. Controls used at the sites may include, but will not be limited to the following:

- Minimize exposed soil areas;
- Maintain undisturbed buffer areas adjacent to streams and wetlands;
- Divert run-on and run-off away from exposed soil areas;
- Phase construction activities to minimize total exposed soil areas at any one time;
- Schedule construction so large areas of exposed soil occur in the dry season (construction season is limited to approximately May 1 through October 31)
- Use ground cover to reduce exposed soil area;

- Use contouring, diversion ditches, retention ponds, etc., to slow runoff;
- Install silt fences to capture sediment near its sources;
- Cover stockpiles, bare soil, and other sources of sediment;
- Maintain inlet protection.

Response 2d Additional BMP's to reduce potential for chemical pollutants to enter storm water include, but are not limited to:

- Locations for concrete truck washout and testing will be designated on the project sites to prevent contact with storm water runoff and runoff from fresh concrete pours will be directed away from streams to reduce potential for high pH runoff to be discharged to streams or water bodies while the concrete cures.
- Chemicals including petroleum products and potentially hazardous or toxic chemical products and waste will be properly stored with secondary containment.
- Spill kits will be placed throughout the project sites.
- Personnel will be provided with appropriate training in spill prevention and response.
- Chemical storage and spill prevention and response equipment and procedures will be monitored and inspected by designated personnel on a regular schedule.

WATER AND BIOLOGICAL RESOURCES

Any planned impacts to surface water features in CDMP (e.g., development in floodplain, construction of a stream crossing, development in wetland) and planned mitigation measures.

Response 3a Worker Environmental Education Program (general applicability)

- Construction contractors, and all subcontractors, will be required to participate in and fully comply with an environmental education program. The program will include, but not be limited to, awareness training regarding: (1) Federal, State, and local environmental laws and permits, as well as the penalties for non-compliance with environmental requirements and conditions; (2) threatened, endangered, and other special status species and their habitats; (3) protection of cultural resources; and (4) environmental protection measures, mitigation, compensation, and restoration.

- In addition, a member of the contractor's management staff will be required to participate in the training session to discuss the contractor's environmental protection plans.

Response 3b Storm Water Pollution Prevention Plan (SWPPP)

- As described above under Geology and Soils Analysis a SWPPP will be prepared.

How will the Army/Partner mitigate wetlands and endangered species that are present in the footprint area?

Response 4a Work Exclusion Zones

Construction equipment and activities will be confined to designated work zones, including designated access roads. Prior to construction, the work zones will be clearly flagged and staked. In addition, sensitive areas that the contractor is required to avoid will be clearly flagged or staked.

Exclusion zones for environmentally sensitive habitat or near special status species will be mapped and also delineated in the field. Exclusion zones will be demarcated by brightly colored construction fencing or flagged ropes. Demarcations will have signs attached that identify each area as an Environmentally Sensitive Area. The fencing will be installed prior to construction and will be maintained throughout each construction season. The following paragraph will be included in the construction specifications for environmentally sensitive areas.

The contractor's attention is directed to the areas designated as "Environmentally Sensitive Areas". These areas are protected, and no entry by the contractor for any purpose will be allowed unless specifically authorized. The contractor shall take measures to ensure that the contractor's employees do not enter or disturb these areas, including by issuing written notice to employees and subcontractors regarding compliance with restrictions for environmentally sensitive areas.

- ✓ During the environmental education program, construction personnel will be informed about the importance of working only in designated work zones and the importance of avoiding all environmentally sensitive exclusion zones. During construction, job inspectors and resource monitors will ensure that construction equipment and ancillary activities avoid any disturbance of sensitive resources outside the designated work zones. Resource monitors will conduct surveys as appropriate for threatened, endangered, and special status species. The following measures also will be implemented:

- ✓ Use and storage of construction equipment will be confined to designated work zones.
- ✓ Existing roads and access points will be used to the greatest extent possible to minimize disturbance to the environment and wildlife.
- ✓ Excavation, filling, and other earthmoving activities will be done gradually to allow wildlife to escape in advance of machinery and advancing soil.
- ✓ Staging areas, borrow material sites, parking locations, stockpile areas, disposal sites for excess earth materials resulting from construction, and storage areas will be located outside of Environmentally Sensitive Areas and will be clearly marked and monitored.

Response 4b Implement Environmental Timeframes

The contractor will complete all construction-related activities in a timely manner to minimize duration and impacts to the environment, habitat, and special status species. In addition, all activities will occur at times of the year determined to be the least detrimental to the environment and special status species. Construction activities that could adversely affect nesting birds will be limited to the non-breeding season, if possible.

Response 4c Species and Habitat Protection

Conservation measures that will be implemented for the protection of threatened, endangered, or other sensitive species and their habitats include the following:

- ✓ The Army/Partner will appoint a point-of-contact for any Army/Partner employee, contractor, or contractor employee who might incidentally take a living (or find a dead, injured, or entrapped) threatened or endangered species during project construction and operations. This point-of-contact will be identified to the employees and contractors during an all-employee education program conducted by the Army/Partner relative to the various federally listed species that may be encountered on the construction sites.
- ✓ Fence sensitive habitats with orange construction fencing or similar material.
- ✓ Minimize native vegetation removal to the extent feasible and re-vegetate impacted areas with suitable native vegetation.
- ✓ Implement an invasive species control plan for re-vegetated areas to ensure that invasive weeds do not establish in these areas.

- ✓ Ensure all construction activities, including clearing, pruning, and trimming of vegetation, are supervised by a qualified arborist and/or biologist to ensure these activities have a minimal effect on natural resources.

Response 4d Migratory Bird Treaty Act Species

- ✓ Conservation measures that will be implemented for the protection of migratory birds include the following:
- ✓ Construction footprints should be kept as small as possible.
- ✓ Known or potential nesting and roosting sites such as live trees with cavities and all snags and stumps should be protected to the extent practicable year-round.
- ✓ Existing nests of raptors or any other bird should not be removed from their locations.
- ✓ Construction activities that could adversely affect known nesting birds and rearing of young through the take of a nest, impact nesting habitat, or cause a disturbance from noise or human activity should be limited to the period between August and April to avoid the bird breeding season.
- ✓ The project area including new buildings should be monitored for bird nesting activity during the breeding season.
- ✓ If raptors or any other birds appear at or near the project area and attempt to nest, typical levels of noise and activity that will occur at the site during the breeding season should be sustained, such that the birds can accept or reject the site on their assessment of the disturbance. Unless it is known that the nest site will be physically disturbed, the birds should be allowed to nest if they choose under the assumption that they will be able to tolerate construction noise and activity.
- ✓ If disturbance of a nest with eggs or young appears unavoidable, or if nesting activity such as incubation or feeding of young may be affected, a project contact at the USFWS and ADFG should be consulted before disturbance begins.
- ✓ If potential nesting habitat must be impacted during the breeding season, a project contact at the USFWS and ADFG should be consulted before disturbance begins.

If these measures cannot be implemented by May 1st of the first year of construction, the following measures will be followed:

- ✓ Within each construction year, it may be necessary to remove vegetation and begin potentially disruptive activities during the bird breeding season. If this occurs, affected areas should be surveyed by a qualified biologist prior to construction. Nesting in areas to be disturbed should be discouraged by hazing if nesting behavior or nest-building activity by birds is observed within habitat areas to be removed. After August 1, monitoring the project area for breeding behavior and activity can be discontinued.

Sediment and erosion control plans and specific BMP's to be used (if known).

Response 5 See discussion of BMP's under Geology and Soils Analysis and under water and Biological Resources.

Plans for installation of groundwater wells (e.g., where, how many, depth, purpose.

Response 6 No wells are planned.

Coastal Zone Management Act compliance plans (where applicable).

Response 7 CZM Act plans are not applicable.

WATER/WASTEWATER AT FORT WAINWRIGHT

The 2006 Non-foreign Area Cost-of-Living Allowance (COLA) Survey Report: Alaska and Washington, DC, Areas assumes the average monthly water consumption for households in Fairbanks, AK to be 7,600 gallons. Per the report, this was derived from earlier COLA research and reflects the average consumption.

WATER

We are conservatively estimating water consumption in all homes at 75 gallons per person, per day. Assuming an average of 3.5 persons per family, 75 gallons per person, per day is about 7,880 gallons per household, per month. The following modeling techniques and data sets were used to generate our estimate:

I. **Historic Consumption on Established Actus Lend Lease Projects** – Through the use of individually metered homes, low-flow fixtures and our education/ conservation programs, Actus believes that the water consumption rate for this project will average less than 75 gallons/person/day at end state. This figure is supported by Actus historical metering data from Fort Campbell (54 gal/person/day for post-1992 homes) and Fort Knox (57 gal/person/day for post-1992 homes.)

II. **Engineering Estimates for Developers** - Developers in the private sector typically use 65 – 75 gal/person/day when planning new communities. The Standard Handbook for Civil Engineers, Fourth Edition (1996), Frederick S. Merritt, M. Kent Loftin, Jonathan T. Ricketts, Sections 21.43 and 22.4, recommends 50-60 gallons per person per day for planning purposes. Water Supply and Pollution Control, Third Edition, John W. Clark, Warren Veissman, Jr., Mark J. Hammer, Chapter 4 (Water Requirements and Waste Volumes, pgs. 97-137), recommends 47-86 gallons per person per day (Average of 56 gallons/person/day) for planning purposes. These references are on modeling and actual data tables from numerous cross-sections of U. S. cities.

III. **Low Flow Devices** – The effectiveness of low flow devices, such as those installed by Actus, is indicated in the "Tampa Water Department Residential Water Conservation Study", dated January 8, 2004, reports on the impacts of high efficiency plumbing fixture retrofits in single-family homes. The line usage before installation of the low flow fixtures was 77.2 gallons per person per day. With an average of 2.91 residents per household, for an average of 6,740 gallons per family. Consumption was reduced by 49.7 per cent with the installation of low flow fixtures to 38.9 gallons per person per day, or 3,396 gallons per family. The Tampa Water Department reported on its website that, "The average amount of water used per month in all houses served by the Tampa Water Department last year was 1,070 cubic feet (10.7 ccf*), or 8,004 gallons."1 We are fully confident that our conservative estimate of 7,880 gallons per family per month is easily achievable.

In Renovated houses, we will upgrade to more efficient, low-flow fixtures in the course of normal maintenance. Additional water consumption reductions will be possible through an aggressive preventive maintenance program and implementation of the Actus education and conservation programs.

SEWER

We are estimating the sewer flow in all homes to be 56 gallons per person, per day. This figure is 75% of our water consumption estimate. Industry standards for sanitary sewer flows generally run at 70 - 80 percent of water consumption in residential developments2. At our other installations, sewer fractions range from 70 to 80 percent as well.

HAZARDOUS AND TOXIC MATERIALS

Description of how the Partner will manage hazardous waste.

[1] http://www.tampagov/net/dept_water/RatesAndFees/Resident_rate_ex.asp

[2] Civil Engineering Reference Manual, Fifth Edition (1989), Michael R. Lindeburg, P.E., which recommends using 70-80 percent of water use for planning purposes.

Response 8a The Partner expects to qualify as a Conditionally Exempt Small Quantity Generator.

Response 8b Any hazardous waste generated during construction would be disposed in compliance with all state and federal regulations.

Response 8c The Partner will identify the hazardous materials present in the structures to be demolished by performing hazardous material surveys prior to demolition or renovation of the structures. Hazardous or toxic materials that are frequently present in older housing, include, but are not limited to: lead- paint, mercury switches, fluorescent tubes and ballasts, and asbestos-contaminant materials.

Response 8d The Partner plans to minimize generation of hazardous waste during demolition and construction by using non-hazardous products, and by recycling materials when possible.

Response 8e Hazardous waste will be managed in accordance with an approved, project-specific Hazardous Waste Management Plan prepared for the project.

Response 8f During long-term management of the housing, generation of hazardous waste will be minimized and any hazardous or toxic materials will be managed in accordance with management plans prepared for the project that are applicable to specific materials (e.g. LPB, asbestos, mercury and PCBs, etc.).

Response 8g

Fort Wainwright was listed on the National Priorities List (NPL) on August 30, 1990. The CERCLIS site ID is AK6210022426. The NPL site has been divided into six Operable Units (OUs). The most recent OU defined for the site is for Taku Gardens(OU6). The Army is the lead agency responsible for oversight of the CERCLA process at the site, and is also the Potentially Responsible Party (PRP). The responsibilities of the Army, EPA, and the State of Alaska Department of Environmental Conservation (DEC) are described in a Federal Facilities Agreement (FFA) signed in 1992. In addition, the Army and ADEC entered into a two-party agreement in 1992 to address Petroleum, Oil, and Lubricants (POL) sites. The investigation and remediation of the CERCLA sites is being implemented under the Army's Installation Restoration Program (IRP).

Description of how hazardous materials from residents will be managed.

Response 9a Tenants will be required to agree to abide by published resident guidelines, which will be provided at the time the lease is signed. The guidelines will include information and restrictions on use, storage, and disposal of hazardous materials.

Response 9b A household hazardous waste program will be implemented to enable residents to drop off small quantities of household hazardous waste for disposal. The household hazardous waste program will be integrated with the existing installation and local municipal hazardous waste program.

Will there be a recycling program, how will it be managed, and who will be responsible.

Response 10a The Partner is responsible for all waste, including recyclables, generated from demolition and construction activities. The Partner emphasizes and highly encourages maximum utilization of recycling opportunities at all times.

Response 10b Recyclable materials generated during demolition or construction including, but not limited to: cardboard and paperboard, light metal, aluminum and steel containers, mercury switches, and paper and plastic containers will be segregated for recycling where it is cost effective to do so or where required by Environmental Law.

Response 10c The Partner shall carry out all removal and disposal of recyclable demolition and construction materials in accordance with environmental laws, specific provisions of the contract specifications, and as the conduct of the work requires.

Response 10d A household solid waste recycling program will be implemented in the neighborhoods managed by the Partner. The recycling program will be integrated with the existing installation and local municipal solid waste recycling program. Residential recycling shall follow environmental laws, including any federal, state, and local laws or regulations, regarding municipal recycling programs.

CULTURAL RESOURCES

In the course of conducting approved excavation, digging, drilling, or disturbance of the ground, the Project Owner shall not intentionally or knowingly remove, disturb, or cause to be removed or disturbed any archaeological or other cultural artifacts, relics, remains, or objects of antiquity. The Project Owner shall engage a qualified archaeologist to monitor such excavation, digging, drilling or disturbance activities in areas known by the Project Owner or previously predicted by the Project Owner to contain archaeologically sensitive locations.

In the event that a previously unidentified archaeological resource is discovered during ground disturbing activities, the Project Owner shall promptly (i) notify the installation's Cultural Resources Manager (CRM) and (ii) stop work involving subsurface disturbance in the immediate area of the resource and in the surrounding area where further subsurface resources may reasonably be expected to occur until it receives written permission from CRM that it may proceed. CRM

and the Project Owner shall consult and notify the SHPO, and any Federally Recognized Tribes as necessary, which entity shall complete any archaeological work that may be necessary and all such actions shall comply with the NHPA and the Archaeological Resources Protection Act, codified at 16 U.S.C. § 470, et seq., as amended ("ARPA"). Construction work may continue in the project area outside the archaeological resource area.

CRM and the Project Owner (and the SHPO if they desire) shall immediately inspect the work site to determine the nature and area of the affected archaeological resource. Within two working days of the original notification of the discovery, CRM and the Project Owner, in consultation with the SHPO, shall determine the NRHP eligibility of the resource.

If it is determined that the archaeological resource does not meet the NRHP Criteria as set forth at 36 C.F.R. Part 60.4 (the "NRHP Criteria") and the resource is not eligible for listing in the NRHP, the Project Owner may resume work.

If it is determined that the resource meets the NRHP Criteria, CRM and the Project Owner shall comply with Section 800.13(b) of the Implementing Regulations as expeditiously as possible, using commercially reasonable efforts. The Project Owner shall not proceed with work in the affected area until the appropriate actions are completed and the Project Owner receives written notice from CRM that work may proceed, whereupon any work located in the affected areas shall, if required by CRM, be monitored by a qualified archaeologist.

Fort Wainwright- A programmatic agreement will be developed to handle responsibilities under Section 106 of the National Historic Preservation Act. At this time there is only one historic home in the RCI footprint, Quarters 1. It contributes to the Fort Wainwright National Historic Landmark District. There is no known or suspected archaeology within the RCI footprint. However, a discovery clause for monitoring if any potential archaeology is found during ground disturbing activities will be included in the Programmatic Agreement and NEPA documents.

SPECIAL NOTE ON AGENCY COORDINATION

To date there are no agency letters to include. We are currently in the process of developing the Programmatic Agreement for submission to the Alaska SHPO and other preservation parties. "Formal consultation with Alaska Native tribes has not been initiated because project locations are within the cantonment. The cantonment area is highly developed and therefore the presence of Alaska Native cultural resources is unlikely. If any cultural resources are identified in previously undisturbed ground during survey, then consultation will be initiated and this section will be updated."

Therefore no consultation with tribes is required for RCI at this time

ENVIRONMENTAL CONCERNS
FOR CONSTRUCTION AND RENOVATION PROJECTS

The U.S. Army Garrison Alaska (USAG-AK) is firmly committed to a policy of environmental stewardship for all lands and facilities under its control. USAG-AK has developed and implemented an Environmental Management System (EMS) based on the ISO 14001 international standard. In order for this EMS to be an effective management tool that enhances mission performance, the design and execution of contracts and projects must integrate environmental management processes into all phases of execution, from concept to final acceptance. Coordination with installation environmental program managers is therefore expected as outlined below.

The following issues are major concerns of the DPW Environmental Office and shall be considered during the design and execution of projects on Fort Wainwright (FWA), Yukon Training Area (YTA), Tanana Flats Training Area (TFTA), and Donnelly Training Area (DTA). More specific guidance may be provided in the project Scope of Work, project specifications, or through the DPW Environmental Office. The primary environmental point of contact for projects is Cliff Seibel, 361-6220. In addition, individuals responsible for specific programs or issues are listed in the narrative.

Part of each project is the preparation of an Environmental Protection Plan by the prime contractor, which will be adhered to by all sub-contractors. This plan shall address how the contractor will comply with the issues listed below. Some items identify a specific requirement for a plan (e.g., Storm Water Pollution Prevention Plan). These can be stand alone plans, or be incorporated into one overall plan. Confirmation of what issue(s) below that may or may not be relevant to a particular project can be coordinated with Cliff Seibel, 361-6220. A copy of this Plan(s) shall be provided to DPW Environmental for review and comment prior to the start of construction.

General Compliance Programs:

1. Contaminated Soils: Any project that involves excavation or movement of soils must include field screening for petroleum (plus any other identified contaminants). Soils registering less than 20ppm are considered clean and may be reused on site or transported to the Post landfill for cover. Soils screening 20ppm or higher must be handled IAW Attachment A, Contaminated Soil. POC: Carlton Haenel, 361-6249

2. Storm Water: (POC: Brian Adams, 361-6623)

a. <u>Design</u>: The storm water system must comply with the Fort Wainwright Storm Water Pollution Prevention Plan and NPDES permit. In general, all storm water is handled by overland flow and drainage ditches. UIC's (underground injection) are not normally approved.

b. Construction: The contractor is responsible for preparing and following a Storm Water Pollution Plan (SWPP) for the site, as well as submitting the Notice of Intent (NOI) and Notice of Termination (NOT) to the EPA and ADEC. An example checklist is included as Attachment G.

3. De-Watering: De-watering refers to removal of water, from a surface or subsurface source, for construction purposes, including but not limited to activities such as dust control or clearing excavations. If de-watering is anticipated, the contractor must prepare a de-watering plan, as a stand alone plan or as part of the SWPP and, if de-watering will exceed 5,000 gallons per day, submit for a permit to ADEC. The plan and permit must conform to ADEC General Wastewater Disposal Permit No 2004DB0101, or current general permit. POC: Brian Adams, 361-6623 and Ellen Clark (for DTA), 873-1614.

4. Wastewater: Use of a facility must be evaluated for need of such items as oil/water separators and applicability of floor drains in the wastewater system. The sanitary system design must be approved by ADEC, and insure that no prohibited substances can enter the drains in violation of Fort Wainwright's wastewater permit. Also, per EPA, an oil/water separator cannot discharge to a septic system. An alternate means of containment needs to be provided for facilities without access to a wastewater system. A copy of the correspondence with ADEC shall be provided to the DPW Environmental Office. POC: Carlton Haenel, 361-6249 or Brian Adams, 361-6623

5. Backflow Prevention: Design of the facility potable water system must include backflow prevention devices and components IAW the applicable plumbing codes, and approved by ADEC. A copy of the correspondence with ADEC needs to be provided to the DPW Environmental Office. Attachment B, Backflow Assembly Test/AG Inspection Report, must be filled out by a certified Backflow Assembly Tester and submitted to the DPW Environmental Office by the Designer/Installer upon completion of the project for all backflow prevention devices installed, moved or repaired. The contractor shall also provide an electronic photograph of the device after installation, along with a detailed one-line drawing of the installation of the device. POC: Joe Malen, 361-4512

6. Noise: Noise generation of the planned use of any given project must be considered in siting. The Installation Noise Management Plan, with maps showing the various noise contours and compatible use zones, is available in the DPW Environmental Office. POC: Cliff Seibel, 361-6220

7. Hazardous Waste/Material:

a. All hazardous materials (paints, fuels, etc) must be stored and used in such a manner as to prevent spills and releases. Any unused or partly used materials are the property of the contractor, and must be removed from Post and disposed of at the contractor's expense. On site refueling operations will conform to guidance in Attachment L. Storage areas are subject to inspection by DPW Environmental Office. POC: Cliff Seibel, 361-6220 or Bill Snyder, 361-9195

b. Hazardous waste generation that is the responsibility of the Post is generally associated with projects involving demolition. These hazards should be identified in advance, and proper abatement planned as part of the project. These hazards include, but are not necessarily limited to asbestos, lead (primarily in paint), PCBs and glycol. Abatement, containerization, handling and sampling (as appropriate) are the responsibility of the contractor. Containerized fluorescent light ballasts (suspect PCB) must also be accompanied by a contractor's statement that none were leaking when placed in the container. Guidance is provided in Attachment C, 200-1 Chapters 8 and 10. Additional guidance is provided in USAG-AK Pam 200-1, available through the DPW Environmental Office. Disposal will be accomplished through the DPW Environmental Office waste contract (asbestos will be disposed of at the FWA landfill). POC: asbestos/lead: Wayne Tolliver, 361-7724; PCB: Cliff Seibel, 361-6220; disposal: Bob Gray, 361-9949 or Bill Snyder, 361-9195. The Environmental Office does not handle radioactive waste/materials (ie: smoke detectors, exit signs, etc). Contact Post Safety for guidance in handling these items, 361-7412.

c. All hazardous material spills must be reported to the DPW Environmental Office as well as the COE or DPW project manager using the DPW Oil and Hazardous Substances Spill Notification form, Attachment D. Reporting to ADEC will be accomplished by the DPW Environmental Office. Clean up of the spill and associated clearance sampling is the responsibility of the contractor. With the exception of the spill notification form, procedures listed in Attachment A will apply. POC: Lee Griffin, 361-6489 or Bill Snyder, 361-9195

8. Solid Waste: The Fort Wainwright landfill is to be used for construction debris only. Municipal solid waste is to be collected separately and disposed of by the contractor. Recycling of debris (concrete, asphalt, metal, etc) should be addressed in the contract specifications or Scope Of Work, and required where practical. Guidance on use of the Fort Wainwright landfill is provided in Attachment E, Fort Wainwright Landfill Prohibitions and Special Restrictions. POC: Brian Adams, 361-6623

9. Air Issues:

a. Dust Control: Fugitive emissions, primarily dust, need to be controlled on each construction site, 24 hours a day, 7 days a week. This includes cleaning of soil tracked out onto Post roadways daily. Attachment F, Fort Wainwright Dust Control Specification, elaborates on this requirement. POC: Cliff Seibel, 361-6220 or Brian Adams, 361-6623

b. Head Bolt Outlets: The Post is subject to Borough air pollution ordinances. One such ordinance requires installation of head bolt outlets in any new or renovated parking lot in which patrons can be expected to park for at least two

hours. This requirement applies to nearly every existing and proposed parking area on Post. POC: Cliff Seibel, 361-6220

c. Air Quality Construction Permit (AQCP): Each project must be evaluated to determine whether an AQCP is required prior to commencing construction. An AQCP is typically required for projects that involve the addition of new air emission sources (e.g., boilers, generators, fire pumps, painting & degreasing operations, fuel storage & loading) and for projects that involve the modification of existing air emission sources (e.g., landfill expansion and non-routine maintenance at the power plant). The evaluation includes determining if the project conforms to the requirements and emission caps established by Fort Wainwright's current Title V operating permit and assesses the need to obtain a permit modification. POC: Eric Dick, 361-3006

d. General Conformity: Each project on Main Post must be evaluated for impacts to the Fairbanks North Star Borough Carbon Monoxide Maintenance Area. This evaluation includes assessing both direct and indirect emissions. Direct emissions include emissions resulting from the installation of new air emission sources, including generators, incinerators, boilers, paint booths, fuel tanks and parts washers. Indirect emissions include emissions resulting from increased vehicle traffic, heat & power demand from the CHPP, cooling, water and wastewater loads. An inventory of these sources will come from the designer and/or end user, and must be provided to the DPW Environmental Office as early into the design process as possible to facilitate this review and the need for a more detailed general conformity determination. POC: Eric Dick, 361-3006

e. New Source Performance Standards (NSPS): Designers must insure any stationary diesel engines (generators, fire pumps, etc) comply with the new EPA NSPS standards for nitrogen oxides, particulate matter, sulfur dioxide, carbon monoxide, and hydrocarbons. The new standards will apply to any stationary diesel engine manufactured after April 2006. The latest standards can be accessed through the EPA website. POC: Eric Dick, 361-3006

10. Fuel Storage Tanks:

a. Underground Storage Tanks (USTs): All USTs installed on Army property will conform to 40CFR280, 18AAC78 and applicable Army guidance. While the EPA and ADEC generally exempt heating oil tanks, the Army requires all USTs to be installed to the same standard. USTs will be double wall steel with cathodic protection (anodic, not impressed), provided with spill and overfill protection, and interstitial leak detection. Fuel lines will be double wall Enviroflex, or equal. Other requirements will be identified based on specific use and installation requirements. POC: Cliff Seibel, 361-6220

b. Aboveground Storage Tanks (ASTs): All ASTs installed on Army property will conform to 40CFR112, as well as applicable ADEC and Army guidance (to include the most current version of the Fort Wainwright Spill Prevention, Control and Countermeasures Plan). In general, all ASTs will be either double wall or vaulted tanks, with containment on ALL four sides. Tanks with double steel on one end will not be accepted. Single wall tanks with alternate secondary containment will generally not be approved, but will be considered on a case by case basis. All tanks will be tapped on the top only, and be provided with spill and overfill prevention and leak detection. Other requirements will be identified based on specific use and installation requirements. POC: Carlton Haenel, 361-6249; or Cliff Seibel, 361-6220

11. Restoration/Contaminated Sites: All projects on or near a current or past restoration site need to comply with Attachment H, Institutional Control Policy. In addition, some of these sites contain monitoring wells, recording sensors and remediation systems. If the site contains any of these items, the contractor shall coordinate all staging and construction activities through the DPW Environmental Office. Restoration personnel will determine which items can be removed or must be saved or must be moved and protected from damage. POC: Therese Deardorff, 384-2716 or Karen Dearborn, 384-2694

12. National Environmental Policy Act (NEPA): A NEPA document (REC, EA, EIS) must be prepared for each project prior to funds being spent on design or construction. Preparation of this document is to be funded by the project proponent, and be reviewed and approved by the DPW Environmental Office. Attachment I, NEPA Analysis Form, identifies the minimum information that must be included in the appropriate NEPA document. POC: Jessica Garron (FWA), 361-3001, or Carrie McEnteer (DTA), 361-9507.

13. Natural Resources:

1. Wetlands: An initial survey of each site must be made by DPW Environmental personnel to determine the potential of wetlands. If wetland conditions exist, delineation will need to be completed by DPW environmental Staff. Once wetland boundaries are delineated, a determination must be requested of, and made by, COE Regulatory office, at which time they may require a permit application be filed. Prior to the start of the project, this permit must be approved. The designer must provide the DPW Environmental Office a drawing showing the project limits before COE Regulatory can be contacted. If a permit is required, additional information will be requested. POC: Lee Griffin (FWA-Cantonment), 353-6489; Jeremy Douse, (YTA and TFTA), 361-4213; and Ellen Clark (DTA), 873-1614.

2. Timber Policy: Once a project siting is established, the DPW Environmental Office forester will evaluate the site for salvageable timber. Based on the estimate, timber can be purchased by the contractor, with the funds being deposited in the DA Budget

Clearing Account, or cut and stacked for individual firewood sales. This policy and guidance is provided in Attachment J, Policy on Use of Timber at Fort Wainwright. POC: Dan Rees (FWA), 361-9318 or Adam Davis (FWA) 361-1168 and Ellen Clark (DTA), 873-1614.

b. Fish Habitat: There are several rivers and streams within Ft. Wainwright, DTA, YTA, and TFTA. All design and construction activities affecting anadromous waters shall be accomplished in accordance with Alaska Statutes AS 41.14.870 – AS 41.14.900.

c. Timber Policy: Once a project siting is established, the DPW Environmental Office forester will evaluate the site for salvageable timber. Based on the estimate, timber can be purchased by the contractor, with the funds being deposited in the DA Budget Clearing Account, or cut and stacked for individual firewood sales. This policy and guidance is provided in Attachment J, Policy on Use of Timber at Fort Wainwright. POC: Dan Rees (FWA), 361-9318 or Josh Buzby (FWA), 361-3016 and Ellen Clark (DTA), 873-1614.

d. Migratory Birds: All migratory birds are of concern, as stated in the Migratory Bird Treaty Act; however, cliff swallows and mew gulls tend to be more visible. Cliff swallows build mud nests on facilities and mew gulls build nests on vehicles and other equipment. Raptors also build nests on power poles. Once a nest has been established and eggs layed, it is against Federal law to disturb the nest or annoy the birds in an attempt to get them to abandon the nest. The contractor should make every attempt to remove partially completed nests daily from 1 May to 15 July. It is also recommended that clearing of grass and scrub land, as well as forested areas occur before 1 May or after 15 July to minimize impacts on ground and tree nesting birds. Design and construction shall also comply with the Bald and Golden Eagle Protection Act. In general, laws regarding birds are relevant to each new season. The non-observance or apparent absence of birds or their nests during the NEPA process does not mean that an area is free of birds or their nests just prior to construction. The area must be cleared prior to construction and, if necessary, permits must be obtained prior to construction. POC: Cliff Seibel (FWA, YTA, TFTA), 361-6220 and Ellen Clark (DTA), 873-1614.

14. Cultural Resources: Cultural resources include (but are not limited to) archaeological sites, historic buildings or structures, and properties of traditional religious and cultural importance. All projects require review for potential conflicts with cultural resources under Section 106 of the National Historic Preservation Act. This review must be coordinated in advance through the USAG-AK cultural resources program. The contractor must also have a policy in place for notifications and actions by workers in the event of inadvertent discovery of cultural resources (artifacts, etc.). Within the cantonment area, potential impacts to the Ladd Air Force Base Historic District and the Ladd Field National Historic Landmark in particular, must be considered. These areas are shown in Attachment K, Ft. Wainwright Historic Building Status. The POC for historic buildings and structures is: Kathy Price, 361-9197. The POC for archaeological

sites and properties of traditional religious and cultural significance is: Julie Raymond-Yakoubian (FRA and FWA), 361-3002 and Aaron Robertson (DTA), 873-4717.

APPENDIX A

HANDLING / MANAGEMENT OF CONTAMINATED SOIL

1. During excavation operations at construction sites, the excavated soil shall be screened for potential contamination (petroleum, unless other contaminants have been identified). Should screened soils having PID readings of 20ppm or greater be encountered, the government project manager (PM) and the Ft. Wainwright (FWA) Environmental Office shall be promptly notified. It is not intended that the project remediate or "chase" contaminated soil encountered at the site outside the design limits of excavation. If the design limits of excavation are reached and contamination is still present, the government PM, FWA Environmental Office, and ADEC will determine the course of action.

2. Excavated soil shall be segregated into three stockpiles:

   a. Less than 20ppm: Soil less than 20ppm may be assumed clean and reused on site or transported to the FWA landfill, or other designated on-Post location. There is no need for special handling.

   b. 20ppm to 99ppm: This soil is assumed contaminated and shall be stored in an ADEC-compliant temporary soil containment cell and tested by an approved lab (IAW 18 AAC 78 and 75). Although assumed contaminated, this soil may be reused or transported to the FWA landfill without remediation upon.

   c. 100ppm and over: This soil is assumed contaminated and shall be stored in an ADEC- compliant temporary soil containment cell and tested by an approved lab (IAW 18 AAC 78 and 75).

3. Containment cells for soils assumed contaminated should be placed within the construction site, if at all possible. Soil cells will need to be managed (cover must be maintained to control dust and prevent water infiltration) until receipt of lab analysis. These cells are for contaminated soil only, no debris (i.e. concrete, asphalt, metal, etc.)

4. Sampling and Analysis:

   a. Sampling and lab analysis is the responsibility of the contractor. Unless other contaminants are known to be present, testing should be done for GRO, DRO, RRO and BTEX. (For a new spill site, the test should be appropriate to the substance spilled)

   b. Generally, one sample is acceptable from each soil containment cell. The pile should be screened and the sample taken from the site of the highest reading.

   c. Samples will need to be taken if the excavation has reached contract limits and field screening still indicates contamination (readings of 20ppm or more). Sampling from the excavation should conform to numbers required by 18 AAC 78 and 75.

d. The number and type of samples is subject to approval by ADEC, and may deviate from guidance given here and in 18 AAC 78 and 75.

5. Upon receipt of lab analysis:

a. Uncontaminated Soil in Cells: Soil that is not contaminated, or within limits for the FWA landfill, shall be moved by the contractor. These soils will be reused, transported to alternate soil storage area, or to the FWA landfill as appropriate.

b. Contaminated Soil in Cells: Soil that is considered contaminated beyond limits acceptable for the FWA landfill will be disposed of by the Environmental office. A remediation contractor will pickup the contaminated soil and cell, thermally treat it, and return it to the FWA landfill or an alternate site.

c. Uncontaminated Soil in the Excavation: If the analysis indicates no remaining contamination, site can be backfilled and construction can continue.

d. Contaminated Soil in the Excavation: If the analysis indicates contamination remains, the COE, DPW Environmental and ADEC will determine next course of action.

BACKFLOW ASSEMBLY TEST/AG INSPECTION REPORT

Name of Premise:

Premise Address:

Location of Assembly:

Type of Hazard Isolated:

Assembly Size: (inches) Assembly Type:

Make: Model:

Serial No.: Line Pressure: (psi)

RPBA / RPDA / DCVA / DCDA Horizontal? yes_ no

Adequate Freeze Protection and/or Drainage? yes_ no

Date of test or Date of retest after repairs:

Tester's Name (print):

Certification No.: Issue Date:

Company Name:

Company Address:

Company Telephone:

Make/model of test equipment:

Test procedures followed:

Check of test equipment calibration accuracy:

Date: By:

RPBA/RPBA

Relief Valve [> 2.0 psid]	Dripped at: or failed to open?	(check) yes	_ psi
	Continued to open?		no
Check Valve #1 [> 1.0 psid]	Pressure drop: Valve Tight?	yes	_ psi ,no
Check Valve #1 Buffer [> 3.0 psi] minus relief valve psid	C V #1 pressure drop	——•	_ psi
Check Valve #2 [a 1.0 psid]	Pressure drop: Valve Tight, Flow direction? Backpressure?	yes	_ psi
		yes __	,no
Air Gap distance adequate?		yes _	,no
Test Cock # 4 opened, meter moved? Detector Meter Reading:		yes _	,no

DCVA/DCDA

Check Valve # 2 O 1.0 psid]	Pressure drop: Valve Tight Flow direction?	yes _	_ psL
			no
Check Valve #1 [s 1.0 psid]	Pressure drop: Valve Tight Flow direction?	yes _	_ psi _, no __
Test Cock # 4 opened, metered moved? Detector Meter Reading:		yes	,no

PVBA/SVBA

Check Valve # 1 |> 1.0 psid]	Pressure drop: Valve Tight?	yes	. _ psi ,no
Air Inlet [> 1.0 psid]	Opened at: Air Inlet opened?	yes _	. _ psi _, no __

This certifies that the above test results accurately reflects the performance of the assembly and/or condition of the air gap at the time of the test.

Signature of Tester Date

8.0 PACKAGING

This section describes selecting, reusing, filling, and managing hazardous materials/regulated waste containers.

8.1 SELECTING A SUITABLE CONTAINER

A variety of containers, from 1-gallon to 110-gallon overpack drums, boxes, plastic totes, and bags, may be used to package hazardous materials/regulated waste.

Choice of container depends on the:

- Type of waste material
- Quantity of waste

For storing hazardous materials/regulated waste, containers must be:

a. **In good condition.** The container must not be leaking, rusted (i.e., more than minor surface rust), corroded, dented more than 2 inches, or have non-working filler caps/bungs and/or other sealing devices, any bulges, grooves (other than removed metal), dents in seams/corrugations, or be deteriorated in any other way. If a container leaks or is not in good condition, the contents must be transferred to another container that meets all standards, or be placed in an overpack. Any overpack must be filled with absorbent capable of soaking up liquid, as a precaution against leaks within the overpack.

b. **Made of a compatible material.** The container must be made of a material that will not react or deteriorate when in contact with the material or waste. For example, acids, such as battery acid, cannot be placed in a steel drum because acid will corrode the drum and cause it to leak.

c. **Securely closed.** All containers used to store hazardous materials/regulated waste (except trash) must have a cover or lid and must close and seal tightly enough to prevent spills, including release of fumes. Storing wastes in open buckets is not allowed. Containers must be tightly closed (more than finger tight) after every use. Special funnels that are designed not to leak if the container is overturned, and not to allow fumes to escape, are required if the funnel remains attached to the waste container. Open-head containers must not be used for any liquids, unless pre-approved by PWE.

d. **In compliance with DOT requirements.** All containers used to store hazardous materials or regulated waste on post must meet DOT-specified packaging requirements (Performance-Oriented Packaging). If a package has the symbol shown below on it, it is a DOT-approved package.

u
n

Followed by a series of numbers or letters

If in doubt about the suitability of any hazardous materials or regulated waste container, call PWE.

Drums that are 85-gallons or larger are overpack containers for leaking drums, and are not for general use.

8.2 REUSING CONTAINERS

Empty containers can be reused for storing waste, provided the material remaining in the container:

a. **Is compatible with the new waste material.** For example, used oil can be placed in a drum previously used for diesel fuel. However, it cannot be placed in a drum that previously contained sodium hydroxide or hydrochloric acid (see Section 7 for information on chemical compatabilities).

b. **Will not contaminate the waste.** For example, solvents will contaminate used oil such that it cannot be burned for energy recovery.

Disposal of empty containers is discussed in Section 5.

8.3 FILLING CONTAINERS

The key steps in filling containers are:

a. **Follow proper personal safety measures.** Always use proper PPE and safety equipment. This information is provided in the site-specific SOPs and MSDSs.

b. **Do not overfill containers.** Allow sufficient headspace for expansion of contents. Generally, a container is considered full when it is 97% filled (e.g., 3 to 4 inches from the top of a 55-gallon drum; 1 to 2 inches from the top of a 5-gallon container; 1-inch from the top of a 1-gallon can). The maximum allowable weight for an open-top drum is 400 kilograms (800 pounds).

c. **Avoid spills.** When filling containers with liquids, be careful to avoid spills. Place absorbent materials around or under a container prior to filling. Use funnels to transfer liquids. Watch the liquid level in the container carefully and do not leave containers unattended when filling (i.e., do not start a transfer pump and then leave the area).

d. **Clean up any spills immediately.** If spillage occurs, the spilled material must be cleaned up immediately and packaged for disposal (see Section 16 for spill information).

8.4 MANAGING CONTAINERS

All containers must be immediately marked and labeled (see Section 10) and placed in an approved storage area (see Section 9), where they must remain until pick-up for disposal.

10.0 LABELING AND MARKING

Hazardous materials and regulated waste ***must be properly labeled and correctly marked at all times. This is necessary so that everyone who works with these materials is aware of hazards and the need for managing hazardous materials and regulated waste in a safe manner to prevent harm to people or damage to property or the environment.***

In this section, the following definitions apply:

Labeling: Refers to the addition of prepared, printed, usually self-adhesive, tags, stickers, placards, or tickets to containers or packages. Includes all such hazard class or descriptive labels required by DOT (49 CFR 171-180) and EPA (40 CFR 260-299) regulations and others such as "bar code labels," etc.

Marking: Refers to the addition of descriptive names, document/requisition numbers, contract line item numbers, gross/net weight numbers, hazardous waste generator unit/activity contact names and phone numbers, descriptive remarks, special instructions, addresses, building number, unit name/number, and similar types of information usually applied by hand using paint, indelible markers, stencils, and so forth. Marking is usually performed onsite by the responsible unit hazardous waste contact persons.

10.1 LABELING AND MARKING HAZARDOUS MATERIALS IN USE

All manufacturers' labeling must be kept on hazardous materials. Small amounts of hazardous materials transferred to another container must be marked with the product name and hazard identifiers ("flammable," "corrosive," etc., as appropriate).

10.2 LABELING AND MARKING REGULATED WASTES IN STORAGE AND FOR TURN-IN

Each waste in temporary storage will fall into one of the following categories:

- *Hazardous waste*
- *Hazardous waste pending analytical results*
- *Non-hazardous waste for energy recovery or recycling*
- *Universal waste*
- *Non-hazardous waste*

Section 5 *provides a list of common wastes and classifies each one according to one of these categories: Hazardous Waste, Non-Hazardous Waste for Energy Recovery, Universal Waste, or Non-Hazardous Waste.*

In rare instances, a container of unknown, unlabeled, unmarked, and unwanted material (see Section 5.45) must be characterized and disposed. Contact PWE to arrange proper waste characterization. Prior to receiving test results, this waste falls into the category "Hazardous Waste Pending Analytical Results."

Figure 10-1 illustrates container labeling and marking requirements. Regulated waste ***must*** have:

- One of the following completed labels:
  - **HAZARDOUS WASTE**
  - **HAZARDOUS WASTE PENDING ANALYTICAL RESULTS**
  - **NON-HAZARDOUS WASTE FOR ENERGY RECOVERY OR RECYCLING**
  - **UNIVERSAL WASTE**
  - **NON-HAZARDOUS WASTE**
- DOT flammable label (Figure 10-2), if it is a flammable liquid
- Bar code
- Package orientation label (Figure 10-3) (i.e., arrows showing "up" direction)
- Appropriate container markings as specified in Figure 10-1 or in unit SOP.

All information shown on Figure 10-1 must be completed as soon as one drop of waste is added to the container. There is only one exception: the start date on a container in an SAA is completed when the last drop of waste is added to the container, or when the container is prepared for transport out of the SAA.

Figure 0-1
Container Labeling

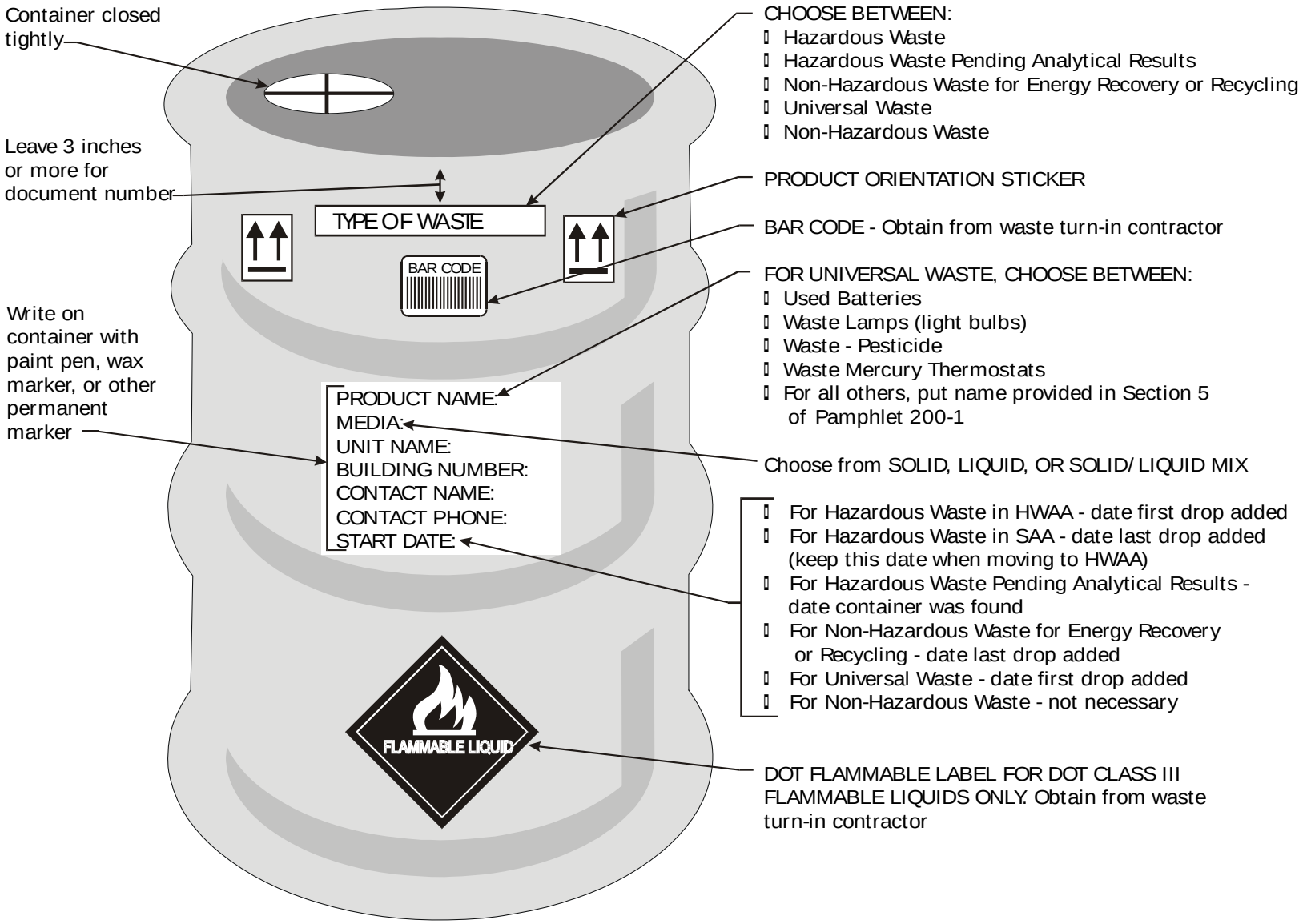
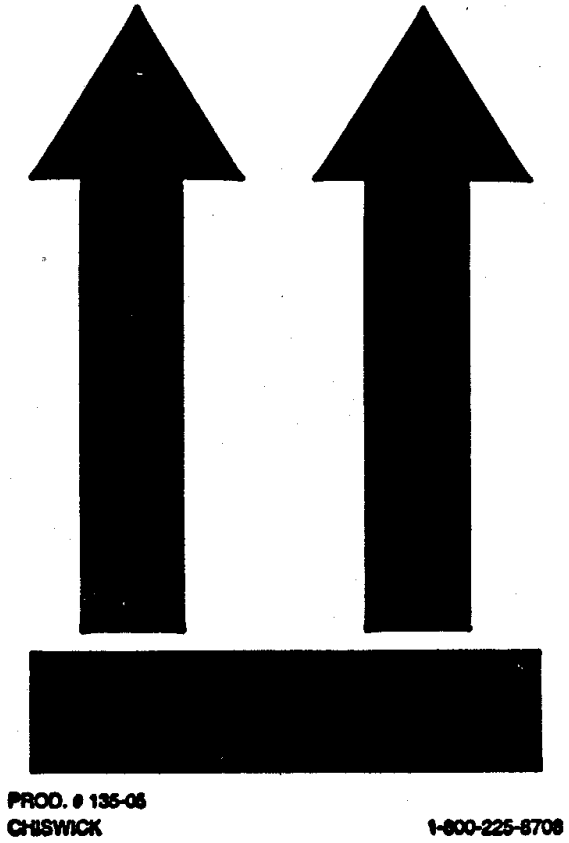


Figure 0-2
DOT Flammable Label

Figure 0-3
Package Orientation Label



APPENDIX D

OIL & HAZARDOUS SUBSTANCES SPILL NOTIFICATION

SPILL #	**FILE #**	**LC**
SPILL NAME, IF ANY	**PERSON REPORTING:**	**PHONE NUMBER**
DATE/ TIME OF SPILL	**DATE/TIME REPORTED**: **DATE/TIME DISCOVERED**:	**REPORTED HOW? (Phone, fax, etc.)**

LOCATION	**SUBSTANCE SPILLED**

QUANTITY SPILLED	**QUANTITY CONTAINED**	**QUANTITY RECOVERED**	**QUANTITY DISPOSED**

POTENTIAL RESPONSIBLE PARTY	**OTHER POTENTIAL RESPONSIBLE PARTIES, IF ANY**

SOURCE OF SPILL

CAUSE OF SPILL

CLEANUP ACTIONS

DISPOSAL METHODS AND LOCATION

ENVIRONMENTAL DAMAGE (circle one) YES NO	**SURFACE AREA AFFECTED (in square feet)**	**SURFACE TYPE (describe area affected)**

COMMENTS. Spill Report FWA 04-XXX

TYPE OF DEC RESPONSE (phone, field visit, took report)	**NAMES OF DEC STAFF RESPONDING**	**CASE STATUS (open, closed, trans. to cont. sites)**

APPENDIX E

FORT WAINWRIGHT LANDFILL
PROHIBITIONS AND SPECIAL REQUIREMENTS

1 SPECIAL REQUIREMENTS

1.1 The Fort Wainwright Landfill will no longer accept mixed municipal solid waste (as of March 31, 2000).

1.2 The landfill will be open by appointment only during the following hours (excluding federal holidays): Monday – Thursday 0800 to 1600 hours and Friday 0800 to 1500 hours.

1.3 The Contractor shall provide the necessary safeguards for the prevention of POL spills, containment and cleanup, and for dust suppression.

1.4 A landfill card form DPW Environmental Division will be required for each contractor.

1.5 Load sheets will be required for each load at the landfill gate per current practice.

1.6 Contractors will be allowed limited access for disposal of items listed below subject to the conditions listed:

1.6.1 Construction:

1.6.1.1 Access must be coordinated at least one day in advance with DPW Grounds Maintenance Shop at 353-7192.

1.6.1.2 Contents of the load must be construction materials only with no mixed garbage such as food containers or other household type refuse. Mixed loads will be refused.

1.6.2 Asbestos:

1.6.2.1 Loads must be properly documented.

1.6.2.2 Access must be coordinated at least one day in advance with DPW Grounds Maintenance Shop at 353-7192.

1.6.2.3 Delivery time must be coordinated and must be early enough in the day to allow the operator to cover the material before the end of the day

2 LANDFILL COVER REQUIREMENTS:

2.1 All construction and asbestos containing material (ACM) debris placed in the landfill by the Contractor's operations shall be covered daily. The Contractor shall provide all plant, labor, material, equipment and supervision necessary to cover all construction and ACM debris deposited in the landfill generated by this projects' construction operations. The Contractor shall be responsible for providing cover in accordance with the requirements listed below and in accordance with all local, state and federal regulations. This work is

considered incidental to the project requirements and no separate payment will be made for this work.

2.2 The material used to cover the construction debris and ACM cells shall be obtained from an approved source(s). See additional requirements listed below. Material shall be spread in sufficient quantity and loose thickness to ensure that when compaction effort is applied the cover material will consolidate easily and uniformly, and that all debris is covered. Loose cover material shall be spread in such a manner in a thickness so as to preclude damage to bagged ACM. Exposed debris or bagged ACM will not be allowed. The maximum compacted thickness shall be 300 mm. Compaction effort shall be applied uniformly across the entire surface employing equipment of a type specifically designed for use in this type of environment. Required compaction effort shall be equivalent to 3-passes of a D-6 dozer or heavier piece of equipment over the entire surface to be covered.

2.3 At the option of the Contractor, suitable cover material may be provided from a source outside of Ft. Wainwright or from the material pit located on Old Badger Road. If the Contractor elects to provide cover material from an outside source, the Contracting Officer prior to the start of any construction or demolition operations shall approve that source. Should the Contractor elect to use the Old Badger Road material pit, the Contractor is advised that at least one other Contractor will be obtaining material from this site. It shall be the responsibility of the Contractor to coordinate his operations with that of the other Contractor(s). Under either circumstance, the Contractor shall provide all plant, labor, equipment and supervision necessary for the acquisition, transport and off-loading of the cover material at the landfill.

2.4 Storage of equipment associated with this effort may be stored within the boundary of the landfill. It is the Contractors' responsibility to safeguard against unauthorized access to the equipment during non-duty hours.

3 DEFINITIONS

3.1 Construction and Demolition (C&D) debris is defined as those materials resulting from the alteration, construction, destruction, rehabilitation or repair of any manmade physical structure or surrounding site. Materials that can be disposed at the Fort Wainwright landfill are:

3.1.1 lumber to include light weight steel building studs

3.1.2 drywall

3.1.3 brick & concrete

3.1.4 metals

3.1.5 plaster

3.1.6 windows

3.1.7 roofing materials

3.1.8 plumbing fixtures

3.1.9 electrical wiring

3.1.10 heating equipment

3.1.11 asphalt

3.1.12 insulation

3.1.13 carpeting

3.1.14 human waste *(bagged and returned from field exercises)*

3.1.15 asbestos *(in it's own segregated cell - disposal is IAW State & Federal laws)*

4 PROHIBITIONS

4.1 Scavenging and Salvaging is prohibited.

4.2 Disposal of hazardous wastes, as defined by 40 CFR part 261 is prohibited. Ensure waste meeting this definition is disposed of in accordance with 40 CFR Part 262, Standards Applicable to Generators of Hazardous Waste.

4.3 Disposal of raw sewage, liquids, radioactive material, explosives, oil, solvents, strong acids, untreated sewage sludge, septage, untreated pathogenic, and other waste defined under 18AAC 60.910(28) is prohibited at this facility.

4.4 Disposal of lead-acid vehicle batteries is prohibited.

4.5 Disposal of polluted soil as defined by 18 AAC 60.025 & 330 is prohibited.

4.6 Disposal of trash other than ***construction debris*** is prohibited.

4.7 Drums must be empty and cleaned of fluids prior to crushing. All drums must be crushed and flattened prior to disposal.

4.8 Ensure that if scrap vehicles are accepted at the landfill, they are drained of all oil and petroleum products and lead-acid batteries removed prior to disposal.

4.9 The Fort Wainwright landfill **cannot** accept the following items:

4.9.1 regular household waste

4.9.2 hazardous waste/materials (except asbestos)

4.9.3 tires

4.9.4 light bulbs, tubes or PCB light ballasts

4.9.5 ∗mattresses

4.9.6 ∗excess/unserviceable TA-50, vehicle components, etc.

4.9.7 ∗wall lockers/bed frames

4.9.8 ∗desks

4.9.9 ∗ refrigerators and white metals

4.9.10 ∗ Turned into the local DRMO for reuse or sale

5 ASBESTOS WASTE

5.1 Disposal of asbestos waste is allowed in accordance with the following requirements; submit to the landfill operator a completed asbestos manifest form with each load of ACM. ACM will be properly contained in leak-tight containers and labeled. Labeling will include description of contents, ACM source location (building number or utilidor location), and the contractor's name and contract number for identification purposes.

5.2 Containers may be barrels, drums, of six-mil or thicker plastic bags. The ACM waste will be placed in approved locations only as directed by the landfill operator. All containers will have warning labels attached that state:

CAUTION
CONTAINS ASBESTOS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH

- OR -

CAUTION
CONTAINS ASBESTOS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS DUST
MAY CAUSE SERIOUS BODILY HARM

5.3 Questions concerning disposal of solid waste at the Ft Wainwright Landfill can be addressed to the Ft Wainwright Environmental Office at 361-6623.

5.4 Authorization Cards need to be obtained from the Ft Wainwright Environmental Office, building 3023 phone 361-6623.

APPENDIX F

FT. WAINWRIGHT DUST CONTROL SPECIFICATION

1. The contractor shall maintain excavations, embankments, stockpiles, haul roads, permanent and temporary access roads, and all other work areas within or outside the project boundaries free from dust which would cause a hazard or nuisance.
2. Sprinkling or similar methods shall be employed to control dust. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.
3. The contractor shall retain sufficient, suitable equipment at the site and repeat applications at intervals necessary to keep all parts of the disturbed area damp at all times (24 hours per day, 7 days per week). As a minimum, one 2000 gallon water distributor truck and one street sweeper shall be on site at all times except when freezing weather precludes sprinkling.
4. There shall be no visible dust coming off the work site at any time, or from any vehicle hauling for the contractor.
5. The contractor shall ensure that no material of any type falls off any vehicle while that vehicle is in transit.
6. Dirt or mud, which is tracked onto paved or surfaced roadways, shall be cleaned away within the same duty day it is deposited.

NPDES Industrial Storm Water Worksheet (Construction)

National Database Information			
Inspection Type			
NPDES ID Number			
Inspection Date			
Inspector Type *(circle one)*	EPA	State	EPA Oversight
Facility Type *(circle one)*	Commercial /Industrial	Residential	Municipal

General	
Inspector Name	
Telephone	
Entry Time	
Exit Time	
Signature	

Facility Location Information					
Name/Location/ Mailing Address					
GPS Coordinates	Latitude		Longitude		
Receiving Water(s)					
Disturbed Area		Start Date		Stop Date	

Contact Information		
	Name(s)	Telephone
Name(s) and Role(s) of All Parties Meeting the Definition of Operator		
Facility Contact		
Authorized Official(s)		

Site Information: *(circle all that apply)*							
Nature of Project	Residential	Commercial/ Industrial	Roadway	Private	Federal	State/ Municipal	Other
Construction Stage	Clearing/ Grubbing	Rough Grading	Infrastructure	Building Const.	Final Grading	Final Stabilization	

Basic Permit Information		
Permit Coverage *ESO Element 3 & 4*	Y	N
Permit Type	General	Individual
Permit notice/sign visibly posted including: copy of NOI, contact name & phone number, location of SWPPP *ESO Element 41*	Y	N
NOI Date		
If applicable, is waiver certification & approval on file?	Y	N

Basic SWPPP Information		
SWPPP Prepared & Available *ESO Element 5 & 30*	Y	N
SWPPP Contents Satisfactory *ESO Elements 5 - 31*	Y	N
SWPPP Implementation Satisfactory *ESO Elements 32 - 48*	Y	N
SWPPP Date		
Intentionally left blank		

NPDES Industrial Storm Water Worksheet (Construction)

SWPPP Review *(can be completed in office)*

General			Notes:
Is there a SWPPP? *ESO Element 5*	Y	N	
SWPPP completed prior to NOI submission? *ESO Element 6*	Y	N	
Copy of permit language? *ESO Element 25*	Y	N	
Is SWPPP consistent with state/tribal/local regulations and permits? *ESO Element 26*	Y	N	
SWPPP updated to incorporate changes to State, Tribal, Local erosion plans? *ESO Element 27*	Y	N	
Have copies of inspection reports/all other documentation been retained as part of the SWPPP for 3 years from date permit coverage expires? *ESO Element 28*	Y	N	
Is a copy of the SWPPP on site or made available? *ESO Element 30*	Y	N	
Did all "operators" sign/certify the SWPPP? *ESO Element 31*	Y	N	

Site Description			Notes:
SWPPP identifies potential sources of pollution? *ESO Element 7*	Y	N	
SWPPP identifies all operators and their areas of control? *ESO Element 8*	Y	N	
Is there a site description? *ESO Element 9*	Y	N	
Nature/sequence of construction activity? *ESO Element 9A - 9B*	Y	N	
Total area of site and total area to be disturbed? *ESO Element 9C*	Y	N	
Is there a general location map? *ESO Element 9D*	Y	N	
Is there a site map? *ESO Element 9E*	Y	N	

NPDES Industrial Storm Water Worksheet (Construction)

Site Description (cont'd)			Notes:
Drainage patterns/outfalls on site map? *ESO Element 9F*	Y	N	
Area of soil disturbance on site map? *ESO Element 9F*	Y	N	
Location of major structural controls on site map? *ESO Element 9F*	Y	N	
Location of storm water discharges to a surface water on site map? *ESO Element 9F*	Y	N	
Location of materials or equipment storage on site map (on-site or off-site)? *ESO Element 9F*	Y	N	
Location/description industrial activities? *ESO Element 9G*	Y	N	
Name of Receiving water(s) or MS4 listed?	Y	N	*Note: Indicate whether receiving water is 303(d) listed.*
Does the SWPPP include dates of major grading activities, temporary/permanent construction cessation, and initiation of stabilization practices? *ESO Element 14*	Y	N	
Endangered Species Documentation? *ESO Element 23*	Y	N	

Controls to Reduce Pollutants			Notes:
Does the SWPPP include a description of all pollution control measures (BMPs) that will be implemented to control pollutants in storm water discharges, including sequence and which operator responsible for implementation? *ESO Element 10 A - C*	Y	N	
Does the SWPPP include a description of interim and permanent *stabilization practices* (e.g., seeding, mulching, riprap for the site)? *ESO Element 11; 12*	Y	N	

NPDES Industrial Storm Water Worksheet (Construction)

Controls to Reduce Pollutants (cont'd)			Notes:
Does the SWPPP identify the contractor(s) and timing by which *stabilization practices* will be implemented? *ESO Element 13*	Y	N	
Does the SWPPP include a description of *structural practices* (e.g., vehicle track-out, silt fences, sediment traps, storm drain inlet protection) for the site? *ESO Element 15*	Y	N	
Does the SWPPP identify the contractor(s) and timing by which *structural practices* will be implemented? *ESO Element 10B - 10C*	Y	N	
Does the SWPPP identify storm water management measures to address storm water runoff once the construction is completed (e.g., retention ponds, velocity dissipation controls)? *ESO Element 16*	Y	N	
Does SWPPP describe measures to prevent discharge of dredge/fill materials to waters of the U.S.? Does site have 404 permit? *ESO Element 17*	Y	N	
Does SWPPP describe measures to minimize off-site vehicle tracking and generation of dust? *ESO Element 18*	Y	N	
Does SWPPP describe controls for pollutants from storage of construction or waste materials? *ESO Element 19*	Y	N	
Does the SWPPP describe controls for pollutants from non-construction activities? *ESO Element 20*	Y	N	
Does SWPPP identify allowable non-storm water discharges? *ESO Element 21*	Y	N	
Does SWPPP ensure implementation of pollution prevention measures for non-storm water discharges? *ESO Element 22*	Y	N	
Is SWPPP revised when BMPs added/modified within 7 days after inspection reveals problems? *ESO Element 29*	Y	N	

NPDES Industrial Storm Water Worksheet (Construction)

Inspections			Notes:
Inspections performed once every 7 days, or every 14 days within 24 hours of a rain event greater 0.5"? *ESO Element 32*	Y	N	
Inspections performed by qualified personnel? *ESO Element 33*	Y	N	
All disturbed areas and/or used for storage and exposed to rain inspected? *ESO Element 34*	Y	N	
All pollution control measures inspected to ensure proper operation? *ESO Element 35*	Y	N	
All discharge locations inspected if accessible, or if not accessible, are nearby downstream locations inspected? *ESO Element 36; 37*	Y	N	
Entrance/exit inspected for off-site tracking? *ESO Element 38*	Y	N	
Inspection report contain all required items and certified? *ESO Element 39; 40*	Y	N	

Notes on SWPPP Review

Site Description:

NPDES Industrial Storm Water Worksheet (Construction)

SWPPP Implementation (*complete in field)*	
Stabilization Practices	
List and describe stabilization practices *ESO Element 43, 48*	*(e.g., seeding, mulching, geotextiles, sod stabilization)*
Are stabilization measures initiated no more than 14 days after temporary or permanent construction cessation? *ESO Element 46*	*(e.g., indicate "yes" or "no"; if "yes", how long without stabilization measures?)*

NPDES Industrial Storm Water Worksheet (Construction)

Structural Practices	
List and describe structural controls *ESO Element 42, 43, 47*	*(e.g., silt fences, hay bales, storm drain inlet protection, sedimentation pond, rip rap, check dam, diversion structure, off-site vehicle track-out)*

Non-Structural Practices	
Street Cleaning *ESO Element 44*	*(e.g., describe measures taken to remove offsite accumulation of sediment)*
Good Housekeeping & Waste Disposal Practices *ESO Element 45*	*(e.g., describe measures taken to prevent litter and debris from becoming a pollutant source)*

NPDES Industrial Storm Water Worksheet (Construction)

Non-Structural Practices (cont'd)	
Equipment Wash/ Maintenance Area *ESO Elements 43*	*(provide brief description)*
Concrete Washout Areas *ESO Elements 43*	*(provide brief description)*

Miscellaneous	
Evidence of Sediment Deposition to Surface Waters **ESO Eligibility - if "yes," site not eligible for ESO*	*(e.g., significant turbidity observed in a receiving water body)*
Pollution prevention measures for non-storm water discharges? **ESO Eligibility - If evidence of non-allowable non-storm water discharges, site not eligible for ESO*	*(provide brief description and determine whether/if non-storm water discharges allowable)*

NPDES Industrial Storm Water Worksheet (Construction)

Miscellaneous (cont'd)	
Has implementation of additional/modified BMPs been completed before next anticipated storm event? *ESO Element 43.C.1*	*(provide brief description)*

Notes on SWPPP Implementation

NPDES Industrial Storm Water Worksheet (Construction)

Photograph Log
1.
*Insert additional rows as needed

U.S. Army Alaska Institutional Controls

Standard Operating Procedure

1. References:

a. AR 200-1, Environmental Protection and Enhancement
b. AR 200-2, Army Institutional Control Program Enforcement
c. USARAK Regulation 200-1 Pamphlet, Hazardous Materials and Regulated Waste Management
d. AR 210-20, Army Installation Master Planning
e. 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan.
f. 42 USC 1901 *et seq.,* Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as Amended by the Superfund Amendments and Reauthorization Act of 1986.
g. Federal Facility Agreements for Forts Richardson and Wainwright
h. Defense-State Memorandum of Agreement.
I. Operable Unit Records of Decision (ROD) and/or other decision documents as appropriate.

2. Purpose. This Standard Operating Procedure establishes the responsibilities, policies and procedures for complying with Department of Defense (DOD), Department of the Army (DA), and US Army Alaska (USARAK) Regulations as well as Federal and State Laws for instituting, maintaining, and enforcing Institutional Controls (IC) on Federal Facilities. These controls have been established to implement the selected remedial actions agreed upon by the U.S. Army (Army), the U.S. Environmental Protection Agency (EPA), and the Alaska Department of Environmental Conservation (ADEC) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendment Reauthorization Act (SARA). The details of these agreements may be found in the Decision Documents (DD) and Records of Decision (RODs) which are maintained in the Public Works, Environmental Offices. These agreements have been executed in accordance with the authority cited in Section 1.

Institutional Controls are legal or administrative actions designed to minimize the risk of exposure to contaminantes at a source area where contamination has been left in the soil or groundwater. Institutional controls such as Excavation Clearance Requests, raw water usage, and property transfer restrictions will supplement engineering controls as appropriate for short- and long-term management to prevent or limit exposure to hazardous substances, pollutants, or contaminants. Typical controls are:

- Installation and maintenance of signs or fences to restrict access to an area;
- Designation of contaminated areas on the Installation Master Plan for distribution to affected units and tenant organizations;
- Periodic publication and distribution of fact sheets identifying the areas of concern;
- Provide all contract agencies with construction, excavation and well installation restrictions.

These controls have been established to prohibit or limit access to or use of the land, surface water, and ground water and are applicable to all known or suspected contaminated sites. The following are examples of the restrictions agreed upon in the RODs:

- Land use restrictions prohibit or limit the construction or renovation of new or existing facilities to include residential area new construction, road repair and realignment, utility work, digging, trenching, excavation, paving, or drilling of soil borings and wells.

- Recreational use of natural resources i.e., camping, fishing, hunting, etc., and training activities (i.e., bivouac, combat maneuvers, land navigation, construction of fighting positions, etc.) can be prohibited or limited depending on the type of contaminant present.

- Surface water restrictions prohibit ingestion of the water or consumption of fish, or other animal that directly uses a surface water source as a habitat or food source.

- Groundwater restrictions prohibit the drilling of water wells for potable water, fire suppression, irrigation or other purposes.

These restrictions will remain in place until EPA, ADEC, and the Army mutually agree that the contamination has been reduced, through cleanup activities or natural attenuation, to levels protective of human health and the environment. In making their decision, EPA, ADEC, and the Army will look at levels specified in the ROD or other decision document. If no decision document exists, EPA, ADEC, and the Army will look at maximum contaminant levels (MCLs) for potable groundwater or risk-based concentrations for soil, sediment, surface water and other uses of groundwater.

3. Scope: These Standing Operating Procedures apply to all USARAK units and activities. Military and Civilian Support Activities, Tenant Organizations and agencies, and Government and Civilian Contractors that occupy, use, build, repair or maintain facilities on USARAK controlled lands.

4. Responsibilities:

a. The Installation Commander or his designee shall approve all Decision Documents and Records of Decision regarding remedial actions and Institutional Controls on USARAK controlled lands. Installation Commander shall also require compliance with these Decision Documents and Records of Decision.

b. Directorate of Public Works shall execute all aspects of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in accordance with the Defense Environmental Restoration Program as agreed upon in the Federal Facility Agreements and the Defense-State Memorandum of Agreement. Public Works shall also:

(1) Establish, maintain, and routinely update complete records of all known or suspected sites, restoration actions and institutional controls;

(2) Document all actions and institutional controls in the Installation Master Plan, Base Maps, and Fact Sheets and distribute to affected units, organizations, and tenants at the point they are affected on annual basis.

(3) Ensure that all affected tenants and organizations are informed of:

(a) Known soil and ground water contamination in their areas of operation;

(b) Institutional controls associated with remedial activities;

(c) Potential human health risks and environmental impacts associated with violating the controls;

(d) Potential fines, penalties, and criminal implications resulting from violations of the institutional controls.

(4) Provide oversight and review of all Excavation Clearance Requests to ensure that all activities that involve disturbance of soil or use of groundwater comply with current environmental laws.

(5) Ensure all affected, contracting mechanisms i.e., job order contract, military construction, in-house projects, etc., are modified to include the appropriate environmental information to prevent a violation of Institutional Controls and the potential fines, penalties, and criminal implications resulting from violations of the institutional controls.

USARAK Form 81-E (Excavation Clearance Request) must be appropriately annotated by DPW-Environmental to prevent the undertaking of work inconsistent with established institutional controls at a particular site. If a dispute with a subordinate activity or tenant arises due to DPW-Environmental non-concurrence on Form 81-E with proposed site work because of the potential for an institutional controls violation, the Commander's Policy Memorandum on Institutional Controls shall provide the basis for final resolution.

c. Directorate of Logistics shall determine the necessary protocols and language to be incorporated into their contract mechanisms to inform potential contractors of the environmental status of USARAK Installations regarding contamination. Such language or protocols will emphasize:

(1) The need for contractors to coordinate with USARAK environmental personnel prior to conducting any soil disturbing activities anywhere on USARAK controlled lands, and;

(2) Potential fines, penalties, and criminal implications resulting from violations of the institutional controls.

d. Directorate of Contracting shall determine the necessary protocols and language to be incorporated into their contract mechanisms to inform potential contractors of the environmental status of USARAK Installations regarding contamination. Such language or protocols will emphasize:

(1) The need for contractors to coordinate with environmental personnel prior to conducting any soil disturbing activities or gaining access to fenced or restricted areas associated with institutional controls anywhere on USARAK controlled lands, and;

(2) Potential fines, penalties, and criminal implications resulting from violations of the institutional controls.

e. Directorate of Plans, Training, Security, and Mobilization (DPTSM) shall:

(1) Provide all troop units utilizing the training areas information regarding known and potential sources of contamination in the training areas;

(2) Provide information regarding Institutional Controls and the potential fines, penalties, and criminal implications resulting from violations of the institutional controls;

(3) Provide (through DPW Environmental) maps and related information regarding USARAK sites with institutional controls;

(4) Attend Institutional Controls status update meetings as required by the Installation Commander.

f. U.S. Army Corps of Engineers, Alaska District shall ensure that all contract mechanisms incorporate a complete section that provides a detailed explanation of the following information:

(1) The environmental status of the installation in question and the existence of institutional controls and the potential fines, penalties, and criminal implications resulting from violations of the institutional controls,

(2) The requirements for obtaining work clearance request prior to performing any type of excavation, trenching, or disturbance of soil,

(3) The notification requirements for reporting spills, previously unknown soil or ground water contamination, and;

(4) How to dispose of hazardous and non-hazardous wastes, contaminated soil and ground water, etc., from USARAK controlled lands.

g. All DOD Personnel responsible for initiating DA Form 4283, Work Request, are required to become familiar with the institutional controls within the immediate work area.

h. Civilian Tenant Organizations shall coordinate all work involving the disturbance of soil or installation of a well anywhere on USARAK-controlled lands with the Directorate of Public Works and obtain proper authorization prior to the commencement of work.

i. Defense Reutilization Management Office shall dispose of all investigation derived waste (IDW) in accordance with the appropriate laws and regulations.

5. The following procedures are applicable to all personnel working in areas where institutional controls are in place:

a. If soil or groundwater must be removed from the work site, it shall be:

(1) Containerized in United Nations approved, Performance Oriented Packaging (UN/POP) containers as specified in 49 CFR 178.500, Specifications and Maintenance of Packaging;

(2) Labeled as non-regulated waste, sampled and analyzed for potential contamination, and;

(3) Moved to an approved storage area pending analytical results. The area shall be approved by the Public Works Environmental Office prior to usage.

NOTE: Soil and groundwater shall not be removed from any part of the installation without written authorization from an authorized USARAK representative. All operations involving hazardous waste will be accomplished in accordance with USARAK Regulation 200-1 Pamphlet, *Hazardous Material and Regulated Waste Management.*

b. If contaminated soils, drums, unexploded ordnance or unusual, potentially hazardous debris are found on or around any work site, the agency shall stop work immediately and notify the Installation's Public Works Environmental Office (and Range Control Officer if unexploded ordnance is involved). Work at this site will be suspended until the area is cleared by the Environmental Office (Range Control if unexploded ordnance is involved).

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY ALASKA
600 RICHARDSON DRIVE #5000
FORT RICHARDSON, ALASKA 99505-5000

REPLYTO
ATTENTION OF:

APVR-RPW-EV (200-1c)

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Institutional Controls

1. All organizations conducting activities on United States Army Alaska (USARAK) controlled land are responsible for complying with established Institutional Controls. Institutional controls are administrative, procedural, and regulatory measures to control human access to and usage of property. They are applicable to all known or suspected contaminated sites where contamination has been left in place.

2. These controls have been established to implement the selected remedial actions agreed upon by the U.S. Army (Army), the U.S. Environmental Protection Agency (USEPA), and the Alaska Department of Environmental Conservation (ADEC) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendment Reauthorization Act (SARA). These controls also apply to remedial actions agreed upon under Two-Party Compliance Agreements. These agreements are concluded between USARAK and ADEC and apply to petroleum/oil/lubricants- (POL) contaminated sites.

3. Institutional controls such as limitations on access, water use, excavations, and property transfers will supplement engineering controls as appropriate for short-term and long-term management to prevent or limit human and environmental exposure to hazardous substances, pollutants, or contaminants. Specific institutional controls include, among other things: limitations on the depth and location of excavations, prohibition of or restrictions on well drilling and use of ground water,

requirements for worker use of personal protective equipment, site monitoring, and prohibition of certain land uses, types of vehicles, etc.

4. Organizational units, tenants, and support/contractor organizations must obtain an Excavation Clearance Request (ECR) (see enclosure) for all soil disturbing activities impacting soils six inches or more below the ground surface. The review process for approval of an ECR begins with the identification of the current status (known or suspected hazardous waste site or "clean" site) of a work location. ECR's for work in known or suspected hazardous waste sites:

a. will include specific limitations and controls on such work;

b. will include specific institutional control procedures, and notification, monitoring, reporting, and stop work requirements;

c. may include procedures for management, characterization, and disposal of any soil or groundwater encountered or removed;

d. will identify "project managers" for both the unit/contractor requesting the work and DPW Environment Resources.

5. The DPW project manager will conduct on-site inspections of each work site (at which institutional controls apply) to determine continued compliance with the terms and conditions of the approved ECR. DPW has the authority to revoke ECR approval if the specified terms and conditions are not being met. ECR forms are available at the Customer Service Desks at:

a. Building 730 at Fort Richardson;

b. Building 3015 at Fort Wainwright;

c. Building 605 at Fort Greely.

6. USARAK has negotiated (with USEPA and/or ADEC) decision documents and/or Records of Decision (RODs) that mandate the implementation of institutional controls. USARAK Directorate of Public Works, Environmental Resources Department (PWE), maintains copies of all decision documents and RODs requiring institutional controls in its real property files. PWE provides regularly updated post maps showing all areas affected by institutional controls. These maps can easily be accessed by using an approved intranet mapping interface application. Copies of these maps will be available to each directorate, activity, and tenant organization. To ensure the effectiveness of institutional controls, all organizational units and tenant activities will be informed on an annual basis of institutional controls on contaminated soils and groundwater in effect near their facilities.

7. Institutional controls are enforceable by the U.S. Environmental Protection Agency (USEPA) and the Alaska Department of Environmental Conservation (ADEC). Failure to comply with an institutional control mandated in a decision document or ROD will violate the USARAK Federal Facility Agreement and may result in stipulated fines and penalties. This does not include the costs of corrective actions required due to violation of an established institutional control.

APVR-RPW-EV (200-1c)
SUBJECT: Institutional Controls

8. Where institutional controls are applicable to any organization, tenant, or activity, land use restrictions shall be incorporated into either a lease or memorandum of agreement, as appropriate. Costs for any and all remedial actions and fines and/or stipulated penalties levied as a result of a violation of an established institutional control shall be funded by the violating activity or organization.

Encl
Excavation Clearance Request

JAMES J. LOVELACE
Major General, USA
Commanding

DISTRIBUTION:
A

NEPA REVIEW FORM USAG-AK	**DATE**
TITLE AND LOCATION	
PURPOSE AND NEED OF PROPOSED ACTION	
DESCRIPTION OF PROPOSED ACTION	
Form Completed By:	**Signature**

ISSUE	**Expected Impact**				
	Positive	**Neutral/ None**	**Adverse**	**Unknown**	**Cumulative**
Air Quality (impacts to emissions, attainment standards, etc.)					
Water Resources (impacts to ground water, surface water, floodplain management)					
Natural Resources/Conservation (impacts to vegetation, wetlands, fish and wildlife, Threatened or Endangered species)					
Cultural Resources (impacts to Native American sites or activities or archaeological and historical sites/districts)					
Human Health and Safety (risk of generating or encountering hazardous materials, high noise levels, traffic, or unexploded ordnance; effect on waste management or pollution prevention)					
Government to Government (risk of impacts to Alaska Native Tribes or resources)					
Access (reduced opportunities for recreation or subsistence)					
Environmental Justice (risks to minorities, low income populations, or children)					
Fire Management (impact of proposed action to risk of fire)					
Socioeconomics (impacts to population demographics, employment, fiscal resources, education, etc.)					
Other potential impacts Specify:					

Does the proposed action have controversial environmental effects?	Yes _____ No ___
Would the proposed action result in high or uncertain environmental risks?	Yes _____ No___ ___
Would the proposed action set a precedent for future actions that could result in significant environmental impacts?	Yes _____ No___ ___

Categorical Exclusion Review

REMARKS/ATTACHMENTS
See attached Record of Environmental Consideration.

APPENDIX J

POLICY ON USE OF TIMBER AT FT. WAINWRIGHT

1. Army Regulation 200-3, Natural Resources - Land, Forest, and Wildlife Management (28 February 1995) Chapter 5 Forest Management, Section 5-2 Timber Management, b. Harvesting actions, (2) Disposal action, (d) states,

   "Commercial forest products will not be given away, abandoned, carelessly destroyed, used to offset costs of contracts, or traded for products, supplies, or services. All forest products are to be accounted for and commercial harvests completed prior to the start of any construction that may impact forest resources. When forest products are removed from Army lands by any means other than a commercial timber sale, a dollar amount equal to the fair market value is to be deposited to Budget Clearing Account 21F3875.3960 20-C S99999 for products removed."

2. USARAK policy on forest products use, as stated in the Integrated Natural Resources Management Plan (INRMP), is as follows:

   2.1. All forest harvesting actions must be coordinated with the Environmental Resources Department / Installation Forester prior to action.

   2.2. Public use of forest products requires a permit from the Environmental Resources Department / Installation Forester prior to removal of timber from the Installation.

   2.3. Mechanical clearing techniques must be coordinated with the Environmental Resources Department / Installation Forester prior to action.

   2.4. Hand clearing techniques should be used to preclude erosion or when conducting harvesting activities in wetlands, when possible.

   2.5. Timber harvest activity is not allowed within 50 feet immediately adjacent to an anadromous stream or high value resident fish water body. Within the next 50 feet, a 50% minimum retention of trees must occur.

   2.6. Permits are required for the vehicular crossing of anadromous and resident fish streams.

   2.7. Trees with a diameter-breast-height (dbh) of less than four inches may be cut without prior approval.

   2.8. Trees with a dbh of less than four inches; slash; and other debris may be distributed into adjacent upland areas, piled for burning, hauled away, or chipped and distributed into adjacent upland areas. Specific disposal methods will be determined by the Environmental Resources Department / Installation Forester prior to action.

   2.9. If spruce logs are not immediately removed from the site, the following special precaution must be taken. All spruce logs greater than four inch dbh must be scored the length of the log with a chainsaw to a half-inch depth so as to cause drying of the phloem to prevent bark and ips beetle infestations in nearby healthy trees.

   2.10. Birch and Spruce trees with a dbh of more than four inches should be salvaged for public use up to a four inch top. Aspen and Cottonwood can be cut and chipped in lieu of harvesting.

   2.11. Trees with a dbh of more than four inches should be stacked separately from smaller

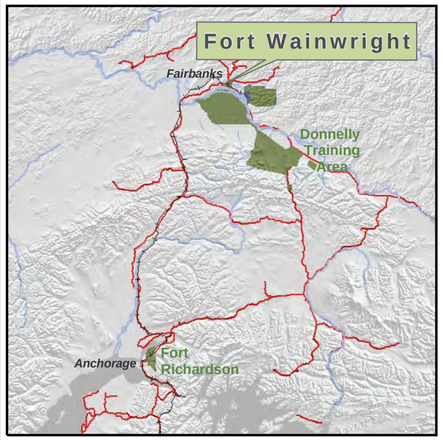
diameter trees.

2.12. All stumps should be cut within six inches or less of the ground surface.

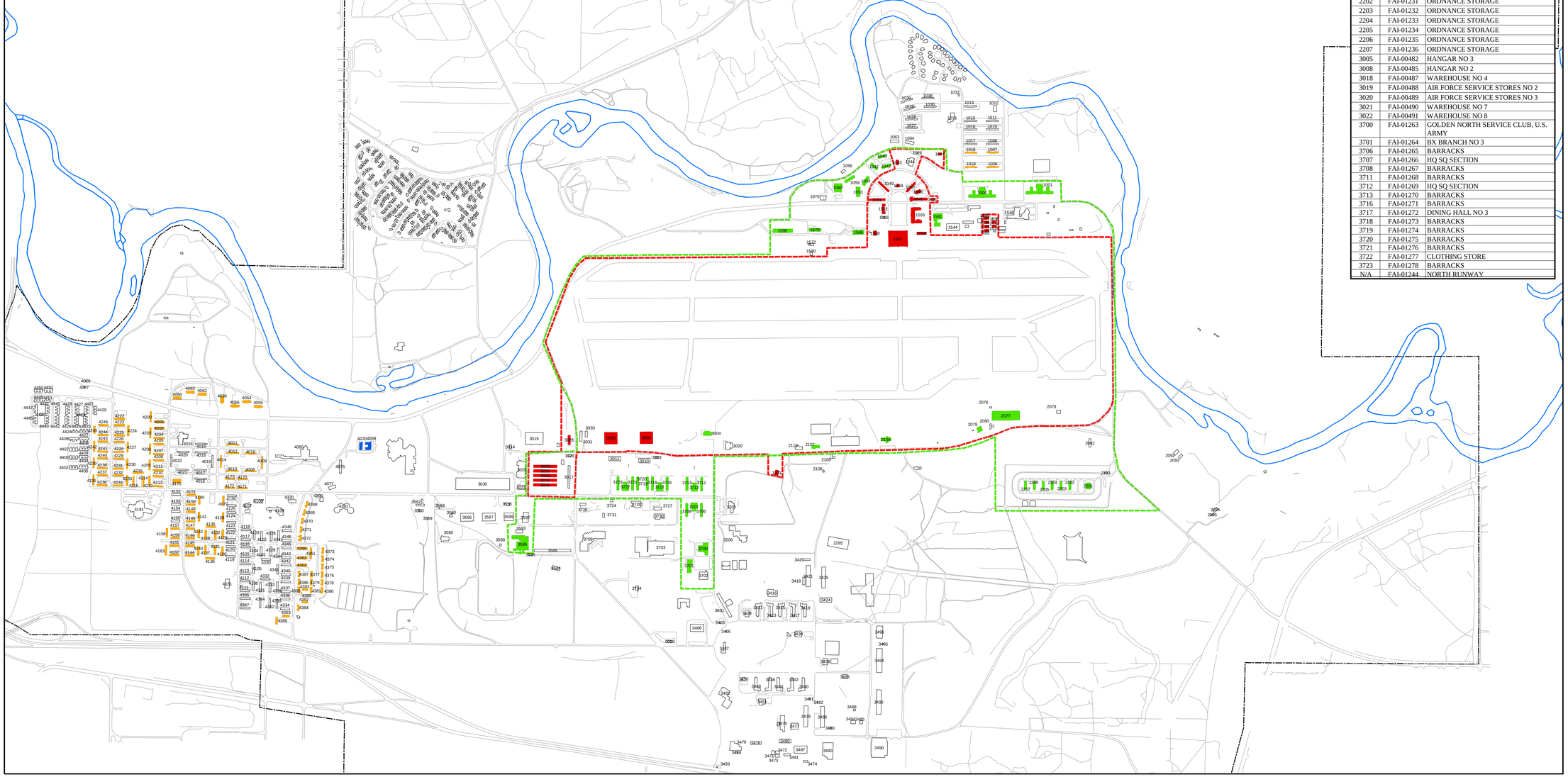
2.13. Spruce boughs are only to be collected from trees sized less than four inches dbh for troop training.

2.14. All large-scale harvest activities must be coordinated with the Natural Resources Office / Installation Forester to ensure other miscellaneous harvest requirements are met prior to action.

Fort Wainwright Building Status



NOTE: This Status Map only addresses the cantonment. If undertaking is outside of the cantonment, direct questions to cultural resources manager.



Buildings Eligible Individually

BLDG #	AHRS #	NAME
4069	FAI-01282	AEROMEDICAL LABORATORY
4070	FAI-01283	AEROMEDICAL LABORATORY

Fairbanks Terminal Historic District

BLDG #	AHRS #	NAME
15173	FAI-01579	OFFICE/GARAGE
15182	FAI-01580	PUMPHOUSE
15183	FAI-01581	MANIFOLD BLDG
15189	FAI-01582	WAREHOUSE
15301	FAI-01583	FUEL TANK
15302	FAI-01584	FUEL TANK
15303	FAI-01585	FUEL TANK
15304	FAI-01586	FUEL TANK
15305	FAI-01587	FUEL TANK
15306	FAI-01588	FUEL TANK
15307	FAI-01589	FUEL TANK
15308	FAI-01590	FUEL TANK
15309	FAI-01591	FUEL TANK
15310	FAI-01592	FUEL TANK
15311	FAI-01593	FUEL TANK
15312	FAI-01594	FUEL TANK
15313	FAI-01595	FUEL TANK
15314	FAI-01596	FUEL TANK
15315	FAI-01597	FUEL TANK
15316	FAI-01598	FUEL TANK

Ladd Field National Historic Landmark Inventory

BLDG #	AHRS #	NAME
1021	FAI-00448	NURSES QUARTERS
1024	FAI-00449	RADIO STATION
1043	FAO-00451	NORTH POST CHAPEL
1045	FAI-00452	MURPHY HALL
1046	FAI-00502	GARAGE
1047	FAI-00453	7 APARTMENTS-OFFICERS
1048	FAI-00446	COMMANDER'S QUARTERS
1049	FAI-00454	12 APARTMENTS-NCO
1051	FAI-00456	14 APARTMENTS-NCO
1533	FAI-00463	BUTLER BUILDING
1534	FAI-00464	BUTLER BUILDING
1537	FAI-00465	BUTLER BUILDING
1538	FAI-00533	BUTLER BUILDING
1539	FAI-00510	BUTLER BUILDING
1540	FAI-00466	BUTLER BUILDING
1555	FAI-00467	HOSPITAL/BARRACKS
1556	FAI-00468	JITNEY GARAGE
1557	FAI-00469	HANGAR NO 1
1558	FAI-00470	AIRFIELD OPERATIONS
1562	FAI-00472	QUARTERMASTERS
3005	FAI-00482	HANGAR NO 3
3008	FAI-00485	HANGAR NO 2
3018	FAI-00487	BUTLER BUILDING
3019	FAI-00488	BUTLER BUILDING
3020	FAI-00489	BUTLER BUILDING
3021	FAI-00490	BUTLER BUILDING
3022	FAI-00491	BUTLER BUILDING
3028	FAI-00492	BUTLER BUILDING
3203	FAI-00465	TYPE 49 AMMO IGLOO
N/A	FAI-01246	NORTH APRON/TAXIWAY
N/A	FAI-01244	NORTH RUNWAY
N/A	FAI-01245	SOUTH RUNWAY
N/A	N/A	SOUTH APRON/TAXIWAY

Ladd A.F.B. Historic District Inventory

BLDG #	AHRS #	NAME
1001	FAI-01248	BARRACKS
1004	FAI-01249	BARRACKS
1021	FAI-00448	PERSONNEL SERVICES
1024	FAI-00449	OPS MANAGEMENT TRAINING
1040	FAI-01251	BOQ 5
1041	FAI-01252	BOQ 4
1042	FAI-01253	BOQ 3
1043	FAI-00451	PROTESTANT CHAPEL
1045	FAI-00452	VIP HOUSING
1047	FAI-00453	OFFICERS QUARTERS
1048	FAI-00446	COMMANDER'S QUARTERS
1049	FAI-000454	NCO QUARTERS
1051	FAI-00456	NCO QUARTERS
1053	FAI-01254	ELECTRIC SHOP
1054	FAI-01255	MOTOR POOL 2
1059	FAI-00457	MOTOR POOL
1060	FAI-01257	AIR DEFENSE COMMAND CENTER
1538	FAI-00533	SPECIAL INVESTIGATION
1541	FAI-00503	AIRWAYS & AIR COMM SERVICES
1555	FAI-00467	HEADQUARTERS
1556	FAI-00468	RECIPROCAL ENGINE SHOP
1557	FAI-00469	HANGAR 1
1562	FAI-00472	AIR FORCE SERVICE STORES NO. 4
1565	FAI-01258	REFUELING MAINTENANCE SHOP
1579	FAI-01289	BOM WAREHOUSE DEPT NO 1
1595	FAI-01338	MACHINE SHOP
2077	FAI-00504	HANGAR NO 7&8
2079	FAI-01259	FLIGHT COMMUNICATIONS SECTION
2085	FAI-00478	HANGAR NO 6
2104	FAI-01260	FALCON MISSILE SECTION
2106	FAI-00505	HANGAR NO 4&5
2107	FAI-01261	FLIGHT SYNTHETIC TRAINER
2201	FAI-01230	ORDNANCE STORAGE
2202	FAI-01231	ORDNANCE STORAGE
2203	FAI-01232	ORDNANCE STORAGE
2204	FAI-01233	ORDNANCE STORAGE
2205	FAI-01234	ORDNANCE STORAGE
2206	FAI-01235	ORDNANCE STORAGE
2207	FAI-01236	ORDNANCE STORAGE
3005	FAI-00482	HANGAR NO 3
3008	FAI-00485	HANGAR NO 2
3018	FAI-00487	WAREHOUSE NO 4
3019	FAI-00488	AIR FORCE SERVICE STORES NO 2
3020	FAI-00489	AIR FORCE SERVICE STORES NO 3
3021	FAI-00490	WAREHOUSE NO 7
3022	FAI-00491	WAREHOUSE NO 8
3700	FAI-01263	GOLDEN NORTH SERVICE CLUB, U.S. ARMY
3701	FAI-01264	BX BRANCH NO 3
3706	FAI-01265	BARRACKS
3707	FAI-01266	HQ SQ SECTION
3708	FAI-01267	BARRACKS
3711	FAI-01268	BARRACKS
3712	FAI-01269	HQ SQ SECTION
3713	FAI-01270	BARRACKS
3716	FAI-01271	BARRACKS
3717	FAI-01272	DINING HALL NO 3
3718	FAI-01273	BARRACKS
3719	FAI-01274	BARRACKS
3720	FAI-01275	BARRACKS
3721	FAI-01276	BARRACKS
3722	FAI-01277	CLOTHING STORE
3723	FAI-01278	BARRACKS
N/A	FAI-01244	NORTH RUNWAY

Legend

- Ladd Air Force Base Historic District Boundary
- Ladd Field National Historic Landmark Boundary
- Fort Wainwright Boundary
- Buildings
- National Historic Landmark Buildings
- Individually Eligible Buildings/ Structures
- Historic District Buildings
- Capehart Housing (housing constructed between 1947 and 1961) covered by Dept. of Army Program Comments. Requires no further Section 106 consultation.

NOTE:

1) Status of building and boundaries subject to change. If map is older than 6 months direct status questions to the cultural resources manager:
Russ Sackett @ 384-3041

2) All Undertakings subject to section 106 review and compliance regardless of eligibility of building affected, unless otherwise noted.

USAGAK GIS
724 Quartermaster Rd.
Ft. Richardson, AK
907-384-3058

STATUS DATE: 11/29/04

0 0.25 0.5 Kilometers
0 0.25 0.5 Miles

Scale 1:12,500

USAGAK GIS
Fort Richardson, AK

DATE: 30 November, 2004

DRAWN: MAD/MAG

FILE: \hist_property_status\hist_property_status.mxd
MAP: \imagest\fwa_hist_prop_113004.pdf

APPENDIX L

ON-SITE REFUELING REQUIREMENTS

1. All fixed fueling points will be double wall construction or have secondary containment to 110% of the volume of the tank. The tank will be grounded and wired to NFPA standards. Fueling points will be inspected and approved by the Fire Department and DPW Environmental Dept. prior to use. Contact Bill Snyder, 361-9195 for inspection.

2. Fueling points shall be clear of all buildings, trailers, and work areas for 50ft in all directions. **"No Smoking or Open Flames with in 50Ft."** signs shall be posted.

3. Fire extinguishers and spill equipment will be available at the fueling site.

4. Bollards or other barriers will be placed around the fueling point to protect the point and fueling area.

5. The fueling area will be provided with secondary containment capable of holding 110% of the fuel capacity of largest (in fuel capacity) piece of equipment to be fueled at this site.

6. The fuel point shall be covered in a manner to prevent rainwater or snow from collecting in the secondary containment. Tank and fueling pad containment shall be inspected and drained as needed. The contractor shall keep a log indicating the date the fuel points and containments were inspected, any observations, and the quantity of water either drained or captured for disposal.

7. All fuel-contaminated debris shall be collected and turned in as hazardous waste.

8. All portable fueling vehicles and equipment (e.g., trucks with tanks, fuel drums, etc.) shall have spill kits on the vehicle.

9. All spills shall be reported to the Ft. Wainwright Fire Dept (353-9170), as well as the DPW Environmental Office (Lee Griffin, 361-6489 or Bill Snyder 361-9195) and appropriate COE representative.

APPENDIX B
Agency Correspondence

United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Fairbanks Fish and Wildlife Field Office
101 12th Avenue, Room 110
Fairbanks, Alaska 99701

September 19, 2007

Ms. Ann Zoidis
Tetra Tech, Inc.
180 Howard Street, Suite 250
San Francisco, CA 94105

Re: Residential Community Initiative Program – Forts Wainwright and Greely

Dear Ms. Zoidis:

Thank you for your letter requesting information on endangered and threatened species, and critical habitats pursuant to Section 7 of the Endangered Species Act of 1973, as amended (Act).

Based on your letter, we understand you are working on a project to renovate housing on Fort Wainwright, Fairbanks and Fort Greely, near Delta Junction.

No listed species occur in the project areas, and there are no designated or proposed critical habitat units in interior Alaska. Therefore, the Service concludes that the proposed activities are not likely to adversely impact listed species. Preparation of a Biological Assessment or further consultation under section 7 of the Act regarding this project is not necessary.

This letter applies only to endangered and threatened species under our jurisdiction. It does not preclude the need to comply with other environmental legislation or regulations such as the Clean Water Act.

Thank you for your cooperation in meeting our joint responsibilities under the Act, and I apologize for the delay in our response. If you need further assistance, please contact Sarah Conn at (907) 456-0499.

Sincerely,

Ted Swem

Ted Swem
Branch Chief
Endangered Species

APPENDIX C
Cultural Resources

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES DEPARTMENT OF THE ARMY,
THE ALASKA HISTORIC PRESERVATION OFFICER,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
AND ARMY ALASKA FAMILY HOUSING LLC
REGARDING
PRIVATIZATION OF MILITARY FAMILY HOUSING
AT
FORT WAINWRIGHT, ALASKA

WHEREAS, the United States Department of the Army (the "Army"), acting, where applicable, through the United States Army Garrison - Fort Wainwright ("USAG Fort Wainwright"), pursuant to the Military Housing Privatization Initiative (P.L. 104-106, 110 Stat. 544, Title XXVIII, Subtitle A, Section 2801), which amends 10 U.S.C. Chapter 169, by addition of a new Subchapter IV—Alternative Authority for Acquisition and Improvement of Military Housing, codified at 10 U.S.C. § 2871, et seq., proposes to privatize certain military family housing (the "Privatization") at Fort Wainwright in Alaska ("Fort Wainwright") by soliciting proposals from one or more qualified private entities to construct or renovate, and operate, maintain and manage, all such housing and certain ancillary facilities for an initial period of 50 years, and has determined the proposed Privatization constitutes an Undertaking (the "Undertaking") subject to Section 106 of the National Historic Preservation Act ("NHPA"), 16 U.S.C. § 470f, and its implementing regulations, 36 CFR Part 800, as amended;

WHEREAS, the Undertaking will involve the rehabilitation, maintenance, management and treatment by or on behalf of Army Alaska Family Housing LLC, a Delaware limited liability company (together with any successor and assign approved as provided in the Ground Lease referred to below, the "Project Owner"), of that certain housing unit known as "Quarters 1" and more particularly identified in Exhibit 1 hereto ("Quarters 1"), which rehabilitation, maintenance, management and treatment will be performed in accordance with the Secretary of the Interior's Standards for Rehabilitation and the stipulations of this Programmatic Agreement (as amended, modified or supplemented from time to time, this "Agreement");

WHEREAS, the Army has identified Quarters 1 as a property eligible for listing on the National Register of Historic Places ("NRHP");

WHEREAS, the Army has defined the Undertaking's area of potential effects ("APE") as the military family housing communities identified in Exhibit 2 (which APE is composed of the same land as that which constitutes the leased premises (the "Leased Premises") under the Ground Lease referred to below);

WHEREAS, Quarters 1 and its surrounding elements are the only historic properties located within the APE and it contributes to a larger historic district identified on Exhibit 3 hereto known as the "Ladd Field National Historic Landmark District," or "Ladd Field NHLD," which falls both

inside and outside the APE and which district is listed on the NRHP, and which district contains buildings, structures, objects, zones and cultural landscapes representing years of military history;

WHEREAS, USAG Fort Wainwright has determined that the "effect" (as defined pursuant to 36 CFR Part 800, as amended) of the Undertaking on Quarters 1 or on other property located in the APE that is determined during the term of this Agreement to constitute "eligible property" (as such term is defined pursuant to the 36 CFR Part 800, as amended) (Quarters 1 and such other eligible property located within the APE being hereinafter collectively referred to as "historic property" or "historic properties") cannot be fully determined, and has consulted with the Alaska State Historic Preservation Officer (the "SHPO") and the Advisory Council on Historic Preservation ("ACHP") in accordance with Sections 106, 110, and 111 of the NHPA;

WHEREAS, Section 110(f) of the NHPA requires Federal agencies to undertake such planning and actions as may be necessary to minimize harm to a National Historic Landmark when undertakings may adversely and directly affect said landmarks;

WHEREAS, USAG Fort Wainwright notified the Secretary of the Interior (the "Secretary") of this Undertaking pursuant to 36 CFR §800.10(c), and the Secretary, as represented by the National Park Service (the "NPS") elected to participate in this consultation;

WHEREAS, this Agreement will be made an exhibit to, and become incorporated into, that certain Department of the Army Ground Lease relating to Fort Wainwright or other applicable document to be entered into between the Project Owner and the Army (as amended, modified or supplemented from time to time, the "Ground Lease") in connection with the Privatization;

WHEREAS, the scope of this Agreement is limited to the proposed Undertaking within the APE. The USAG Fort Wainwright shall comply with 36 CFR Part 800, as amended, for all other individual undertakings;

WHEREAS, all Capehart and Wherry era housing units at Fort Wainwright have been taken into account through an Army-wide Program Comment by the ACHP and no further consideration shall be provided for such housing units under this Agreement. The "Draft Design Guidelines for Capehart and Wherry Era Housing" prepared by the Army were considered by the USAG Fort Wainwright and the Project Owner during preparation of the Privatization's "Community Development and Management Plan" and the USAG Fort Wainwright has advised the Project Owner that Capehart and Wherry properties may be eligible for historic preservation tax credits;

WHEREAS, the Army has invited the ACHP to be a consulting party and full signatory to this Agreement pursuant to 36 CFR § 800.6(c);

WHEREAS, the Army has invited the SHPO to be a consulting party and full signatory to this Agreement pursuant to 36 CFR § 800.6(c);

WHEREAS, the Army has invited the Project Owner to be a concurring party to this Agreement pursuant to 36 CFR § 800.6(c)(2);

WHEREAS, the Army has invited the Fairbanks North Star Borough Planning Commission, a Certified Local Government, to be a concurring party to this Agreement pursuant to 36 CFR § 800.6(c)(3) and they have declined to participate;

WHEREAS, the Alaska Native Villages of the Upper Tanana (the "Upper Tanana Native Villages") have been previously notified of cantonment projects and they have asked the Army not to be formally contacted regarding these types of projects, including the Undertaking. However, the Army will continue to provide the Upper Tanana Native Villages with relevant information during quarterly meetings for purposes of consultation on the Undertaking pursuant to 36 CFR § 800.2 and will initiate Government-to-Government consultation with the Upper Tanana Native Villages upon their request. At this time, none of the Upper Tanana Native Villages have chosen to participate in the consultation on the Undertaking; and

WHEREAS, the Army has invited the public to comment on this Agreement pursuant to 36 CFR § 800.6(c)(4) through the National Environmental Policy Act process as this document was attached to the environmental assessment prepared for this undertaking and these comments have been considered; and

NOW, THEREFORE, the USAG Fort Wainwright, the SHPO, the ACHP and the Project Owner (collectively, the "Signatories") agree that the Undertaking shall be implemented in accordance with the following stipulations (the "Stipulations") in order to take into account the effect of the Undertaking on historic properties located within the APE:

STIPULATIONS

USAG Fort Wainwright shall ensure the following:

I. IMPLEMENTATION

A. USAG Fort Wainwright shall incorporate this Agreement into the Ground Lease as an exhibit such that this Agreement will become binding upon the Project Owner upon the execution of the Ground Lease by the parties thereto. The terms of this Agreement are binding on all Signatories, and their respective successors and assigns.

B. The Signatories agree to perform their respective obligations in a timely manner consistent with the terms and Stipulations of this Agreement and to cooperate in good faith with other Signatories' efforts to comply with the terms and Stipulations set forth herein.

C. Any and all reviews by the SHPO pursuant to this Agreement (except those undertaken as part of (i) a historic preservation tax credit process or (ii) a process aimed at amending, modifying or supplementing this Agreement), shall be completed within thirty (30) calendar days of the SHPO's receipt of the applicable documents to be reviewed, unless otherwise specified. If the SHPO fails to respond in writing within the time specified, it may be conclusively presumed that the SHPO does not object to the findings or proposals contained in the documents submitted for review.

D. USAG Fort Wainwright shall provide the Project Owner with all pertinent documents concerning the Ladd Field NHLD (including, without limitation, all pertinent documents concerning Quarters 1). Such documents shall include but are not limited to the most current Integrated Cultural Resource Management Plan (the "ICRMP") and the National Register of Historic Nomination Form for the Ladd Field NHLD.

E. USAG Fort Wainwright shall conduct, at its own cost and expense, periodic historic architectural surveys of all buildings, structures, and landscapes within the APE as appropriate. These periodic surveys will occur at five-year intervals coinciding with the amendments to the USAG Fort Wainwright's ICRMP. Any newly identified eligible property located within the APE shall be subject to the provisions of this Agreement. USAG Fort Wainwright shall provide updated information about those historic properties as appropriate to the Project Owner.

F. The Army shall inform the Project Owner of the federal historic preservation tax credit benefits pursuant to the established application process before the start of applicable rehabilitation projects involving applicable historic buildings. In the event that the Project Owner elects, in its sole discretion, to seek any such historic preservation tax credits, the proposed project will, upon receipt from the NPS of an approved "Part II Certification" pursuant to such tax credit application process, be exempt from the terms and conditions set forth in Section II of this Agreement. In the event that the approved plans for a project involving such historic preservation tax credits are subsequently modified and then determined by the NPS to no longer meet the Standards (as defined in Section II.A below), Section II of this Agreement will thereupon apply to such project.

G. The Project Owner shall have access to and utilize Qualified Staff (as defined below) for the development of rehabilitation plans, to review and screen proposed projects and work requirements that affect historic properties that are subject to this Agreement, and to assist the USAG Fort Wainwright Cultural Resources Manager ("CRM") and the CRM's staff with any consultations subject to this Agreement, as necessary. "Qualified Staff" are those who meet the *Secretary of the Interior's Historic Preservation Professional Qualification Standards* (62 Fed. Reg. 33,707 (June 20, 1997)) ("Professional Qualifications"). Without limiting the foregoing, the Project Owner shall maintain an architectural historian or historic architect on its staff who satisfies the Professional Qualifications.

H. The Project Owner will ensure that all work on historic properties, including repair, maintenance, and work carried out by outside contractors, will be performed by or under the oversight of its Qualified Staff. Without limiting the foregoing, all work performed pursuant to this Agreement regarding archaeological resources shall be carried out by, or under the oversight of, a professional archaeologist who meets the Professional Qualifications for archaeologists. In order to meet the foregoing requirements, (i) the Project Owner will transmit appropriate preservation guidance and documents, and (ii) the Army will provide periodic updates of its ICRMP and other applicable cultural resource documents for which the Army is responsible.

II. REVIEW AND CONSULTATION

A. The Project Owner shall rehabilitate, maintain, manage, and treat historic properties in accordance with *The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (the "Standards"). The Project Owner shall not demolish any historic property without the written consent of the Army and then only when permitted to do so in accordance with the standard procedures set forth in the 36 CFR Part 800, as amended.

B. USAG Fort Wainwright has determined, through consultation with the SHPO and other consulting parties, that the actions defined in Exhibit 4 (the "Exempt Activities") will have no "adverse effect" (as such term is defined pursuant to 36 CFR Part 800, as amended) on historic properties. Where the Project Owner proposes to undertake any of the Exempt Activities, no notification or consultation is required with the USAG Fort Wainwright, the SHPO, or other consulting parties. The Exempt Activities undertaken throughout the calendar year will be listed in the annual report of the same year. Upon written consent of all the Signatories, additional activities will be included as Exempt Activities without need for any separate amendment to this Agreement. USAG Fort Wainwright will notify the Signatories when it has received said written consent and distribute a copy of the revised Exhibit 4 to all Signatories and concurring parties to this Agreement, to be immediately put into effect.

C. For each proposed project, other than those constituting Exempt Activities, the Project Owner shall submit project documentation to the CRM. Said documentation shall consist of: a description of the proposed project; photographs of existing conditions; and, as appropriate, sketches/drawings illustrating before and after conditions, and information on planned materials and methods of construction.

D. The CRM will have 10 days to review the proposed project (during the first 5 days of which 10 day period the CRM may (i) request additional information, if necessary; and (ii) schedule a site visit, if necessary) and determine what effect, if any, the proposed project has on historic properties. At the end of such 10 day review period, if the CRM determines that the proposed project will not affect historic properties, it will notify the Project Owner that the proposed project may proceed. Items reviewed under this section will be reported in the appropriate annual report.

E. If the CRM determines that a proposed project will have no adverse effect, it will submit all applicable documentation to the SHPO and other Signatories for review. If the SHPO or other Signatories do not object to the finding within 30 days of being notified of such finding, the USAG Fort Wainwright shall notify the Project Owner that the proposed project may proceed with any applicable conditions, requirements, or treatment options. If the SHPO or other Signatories object to the finding within such 30 day period, and the Project Owner and the USAG Fort Wainwright are not able to resolve this objection within 15 days of objection, the USAG Fort Wainwright shall notify the SHPO and other Signatories that USAG Fort Wainwright shall initiate consultation in accordance with 36 CFR § 800.5(c)(3).

F. If the CRM determines there will be an adverse effect on historic properties, the Project Owner shall study the feasibility of conducting the project in a manner so as to minimize harm to the Ladd Field NHLD as required under 36 CFR § 800.10 and consistent with the Standards. In that regard, the Project Owner shall consider alternatives that treat the historic properties in a manner consistent with the Standards, and shall notify the Army (who shall forward the same to the

SHPO and other Signatories) of its preferred alternative and the rationale for selecting that alternative. The notification shall include the Project Owner's proposal for avoiding, minimizing or mitigating the adverse effect. The SHPO and other Signatories shall have 30 days to respond. If the SHPO and/or other Signatories do not object or respond within said period, the USAG Fort Wainwright shall, within 5 working days, notify the Project Owner that the project may proceed with any applicable conditions, requirements, or treatment options. If the SHPO or other Signatories object to the action within 30 days, and the Project Owner and the USAG Fort Wainwright are not able to resolve the objection within 15 days of SHPO's or such other Signatories' objection, the USAG Fort Wainwright shall notify the SHPO and other Signatories and continue consultation in accordance with 36 CFR § 800.6(b)(1)(v).

G. In addition to the foregoing provisions, the Project Owner shall submit to the USAG Fort Wainwright any plans for building exteriors of any new construction (and any plans for additions or modifications to the size, scale and/or massing of any existing buildings) proposed to be implemented by or on behalf of the Project Owner after the effective date of this Agreement within the portion of the APE identified on Exhibit 5 hereto as the "buffer zone" to determine whether such planned building exteriors have an effect on the Ladd Field NHLD. Such proposed plans shall be subject to review and consultation in accordance with Sections II.C, II.D and II.E above.

III. POST REVIEW UNANTICIPATED DISCOVERIES

A. In the course of conducting approved ground disturbing activities, the Project Owner shall not intentionally or knowingly affect (such as to remove, disturb, or cause to be removed or disturbed) any archaeological or other historic properties. The Project Owner shall engage a qualified archaeologist to monitor such ground disturbing activities in areas known by the Project Owner or previously predicted by the USAG Fort Wainwright to contain archaeologically sensitive locations.

B. In the event that a previously unidentified archaeological resource is discovered during ground disturbing activities, the Project Owner shall immediately (i) notify the USAG Fort Wainwright and (ii) stop work involving subsurface disturbance in the immediate area of the resource. If approved by the CRM, subsurface work may continue in areas where subsurface archaeological resources are not reasonably expected to be encountered. In addition, work may resume in affected areas after the Project Owner receives written permission from the Army that it may proceed. The Army shall notify the SHPO and the Upper Tanana Native Villages regarding such discoveries and related actions and the Army shall ensure that any archaeological work that may be necessary shall be completed in accordance with the NHPA and the Archaeological Resources Protection Act, codified at 16 U.S.C. § 470, et seq., as amended ("ARPA"). Construction work may continue in the project area outside the archaeological resource area.

C. The Army, the Project Owner, the SHPO and the Upper Tanana Native Villages, if they so request, shall immediately inspect the work site to determine the nature and area of the affected archaeological resource. Within ten working days of the original notification of the discovery, the Army and the Project Owner, in consultation with the SHPO, and the Upper Tanana Native Villages where appropriate, shall determine the NRHP eligibility of the resource.

D. If it is determined that the archaeological resource does not meet the NRHP Criteria as set forth at 36 CFR Part 60.4, as amended (the "NRHP Criteria") and the resource is not eligible for listing in the NRHP, the USAG Fort Wainwright may notify the Project Owner to resume work.

E. If it is determined that the resource meets the NRHP Criteria, the Army shall comply with 36 CFR § 800.13(b) as expeditiously as possible, using commercially reasonable efforts. The Project Owner shall not proceed with work in the affected area until the appropriate actions are completed and the Project Owner receives written notice from the Army that work may proceed, whereupon any work located in the affected areas shall, if required by the Army, be monitored by a qualified archaeologist.

F. If human remains are inadvertently discovered, the Project Owner will cease all activity in the affected area and immediately notify the USAG Fort Wainwright of the discovery. The Project Owner shall ensure that the remains are secured from further disturbance or vandalism until a plan for treatment has been developed. If the USAG Fort Wainwright determines that the remains are Native American, the Garrison Commander shall immediately undertake any actions necessary under the Native American Graves Protection and Repatriation Act, as amended. The USAG Fort Wainwright shall follow the requirements of 43 CFR 10 in regards to the discovery. If the USAG Fort Wainwright determines that the remains are not Native American, and do not warrant criminal investigation, the USAG Fort Wainwright shall immediately notify the SHPO and consult with the SHPO to identify descendants or other interested parties, if any. The USAG Fort Wainwright, in consultation with the SHPO and any interested parties, shall develop a plan for the respectful treatment and disposition of the remains.

IV. EMERGENCY ACTIVITIES

A. In the case of an emergency (as defined below), the Project Owner shall perform those actions reasonably necessary, using commercially reasonable efforts, to protect historic properties, with on-site monitoring by the Project Owner's Qualified Staff. Where possible, such emergency measures shall be undertaken in a manner that is consistent with the Standards. This emergency provision is limited to work initiated within 10 calendar days of, and in direct response to, an emergency. As used in this Section IV, the term "emergency" means (i) a disaster or emergency declared by the President of the United States or by the Governor of a State or (ii) other immediate threats to life or property.

B. If emergency action is required and undertaken, the Project Owner shall notify the USAG Fort Wainwright as soon as practicable of any actions the Project Owner has already taken in respect thereof as well as of any further actions that the Project Owner proposes be taken in connection therewith. The USAG Fort Wainwright, in turn, shall provide such information to the SHPO as soon as practicable. The SHPO shall have 10 days to review and comment on any such proposed plan for further actions to address the emergency.

V. DISPUTE RESOLUTION

A. Any disputes arising under this Agreement shall be resolved in accordance with this Section V, unless otherwise addressed in accordance with provisions set forth in Sections II.C, II.D and II.E above.

B. If, at any time during the implementation of this Agreement, any Signatory objects to and/or disputes any plan, action or failure to act pursuant to this Agreement, such objecting Signatory may file a written objection with the USAG Fort Wainwright.

C. Within 30 days of receipt of such objection, the USAG Fort Wainwright shall commence consultation with the objecting Signatory and with other Signatories in order to resolve the dispute.

D. If, within 30 days of initiating such consultation, the USAG Fort Wainwright determines that the objection and/or dispute cannot be resolved, the USAG Fort Wainwright shall forward all documentation relevant to the objection and/or dispute, including its proposed response to the objection, to the ACHP and other Signatories and request the ACHP review of the objection and/or dispute.

E. Within 45 days after receiving such documentation, it is anticipated that the ACHP would either:

1. Advise the USAG Fort Wainwright that it concurs with the USAG Fort Wainwright's proposed response to the objection and/or dispute, whereupon the USAG Fort Wainwright shall respond to the objection accordingly; or

2. Provide the USAG Fort Wainwright with recommendations, which the USAG Fort Wainwright shall take into account in resolving the objection and/or dispute; or

3. Notify the USAG Fort Wainwright that it shall comment pursuant to 36 CFR § 800.7(c) and proceed to comment within the time frames specified therein. Any comment provided in response to this request shall be understood to apply only to the subject of the objection and/or dispute and shall be taken into account by the Army in accordance with 36 CFR § 800.7(c)(4) with reference to the subject of the objection and/or dispute.

Should the ACHP not exercise one of the options set forth in clauses (1), (2) or (3) above within 45 days after receipt of all pertinent documentation, the USAG Fort Wainwright shall move forward with its proposed response to the objection.

F. The USAG Fort Wainwright shall notify the other Signatories of the applicable determination pursuant to Stipulations V.A. through E. above and the USAG Fort Wainwright shall proceed accordingly.

G. The responsibility of the USAG Fort Wainwright and/or the Project Owner to carry out actions under this Agreement that are not the subject of objection and/or dispute shall remain unchanged. However, until the objection and/or dispute is resolved in accordance with this Agreement, work subject to the objection and/or dispute shall not proceed and the Project Owner shall be excused from its obligations relating to the performance thereof. Work not subject to objection and/or dispute shall proceed provided that said work is unrelated to and does not affect the work subject to objection and/or dispute.

VI. REPORTING REQUIREMENTS AND MONITORING

A. The Project Owner shall maintain a case file on all historic properties located in the APE and the rehabilitation thereof or improvements thereto. Such case file shall include rehabilitation documents and documentation produced pursuant to this Agreement, correspondence related to the applicable project, and maintenance records. Copies of such case file shall be provided to the USAG Fort Wainwright and/or the Signatories upon request (and at the requesting party's expense) and shall be transferred to the USAG Fort Wainwright upon expiration or early termination of the Ground Lease.

B. The Project Owner shall provide USAG Fort Wainwright with any files related to any archaeological work undertaken pursuant to this Agreement resulting from unanticipated discoveries. These files may include documentation related to: archaeological issues; providing information for correspondence related to consultation with the SHPO, the Upper Tanana Native Villages and other consulting parties; determinations of eligibility; and reports on any surveys conducted or excavations undertaken. Archaeological site information shall be kept confidential consistent with the provisions of ARPA and NHPA**.**

C. On or before March 1st of each year, commencing with March 1, 2009, the Project Owner shall prepare and distribute to the other Signatories annual reports summarizing the activities undertaken toward the implementation of this Agreement during the prior calendar year. These reports shall be in such form as may be mutually agreed to from time to time by the Signatories (in each case prior to the due date thereof (and no amendment or modification to this Agreement shall be required in order to reflect any modifications to such reports so agreed to from time to time)). At a minimum, such reports shall include, but not necessarily be limited to, information regarding the following: the status and condition of all historic properties within the APE; actions taken by the Project Owner in accordance with the Exempt Activities list; consultations conducted pursuant to this Agreement; unanticipated problems that have arisen or that could affect the integrity or upkeep of a historic property within the APE; emergency actions taken pursuant to Section IV hereof; information provided pursuant to Section I.H hereof; any unanticipated subsurface discoveries and archaeological work related thereto; and any other activity or policy that may affect a historic property within the APE.

D. The USAG Fort Wainwright, the SHPO and the ACHP may monitor and review the activities of the Project Owner carried out pursuant to this Agreement. The Project Owner shall cooperate with the USAG Fort Wainwright, the SHPO and the ACHP in their monitoring and review responsibilities. The USAG Fort Wainwright, the SHPO and the ACHP shall not unreasonably disrupt ongoing efforts of the Project Owner.

VII. ANTI-DEFICIENCY ACT

A. All requirements set forth in this Agreement requiring the expenditure of Federal funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act, 31 U.S.C. § 1341, et seq. No obligation of this Agreement shall require or be construed to require a commitment by the USAG Fort Wainwright to expend funds not appropriated for a legally sufficient purpose.

B. If the USAG Fort Wainwright cannot perform any obligation set forth in this Agreement either (1) because of the unavailability of funds pursuant to Section VII.A above or (2) because any term or provision of this Agreement is held by a court of competent jurisdiction to be invalid or unenforceable, the Signatories intend that the remainder of the Agreement be executed to the greatest extent practicable. The Signatories agree to consult in good faith on any obligation of any Signatory under this Agreement that cannot be performed because of the unavailability of funds and shall consult to determine whether any amendments, modifications or supplements to this Agreement are warranted.

VIII. NOTICES

All notices, submissions, consents, demands, requests, or other communications which may or are required to be given hereunder to any Signatory shall be sent by (a) hand delivery (which shall be deemed to have been received upon delivery), (b) reputable overnight courier (which shall be deemed to have been received one business day after the date sent), (c) United States mail, registered or certified, return receipt requested, postage prepaid (which shall be deemed to have been received upon receipt by the sender of the return receipt), or (d) facsimile, with a copy sent by reputable overnight courier (which shall be deemed to have been received when the sender receives a confirmation of successful transmission of the facsimile). Such documents shall be sent to the following addresses:

<u>If to the USAG Fort Wainwright</u>:

Garrison Commander
Department of the Army
Headquarters, US Army Garrison Alaska
1060 Gaffney Road, #4500
Fort Wainwright, AK 99703-4500
Attention: Colonel Timothy Jones

with a copy to:

Directorate of Public Works
Attn: IMPC-FWA-DPW-ENV
1060 Gaffney Road, #4500
Fort Wainwright, Alaska 99703-4500
Attention: Cultural Resources Manager

<u>If to SHPO</u>:

State Historic Preservation Officer
Office of History and Archaeology
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501
Attention: Judith E. Bittner

<u>If to Project Owner</u>:

Army Alaska Family Housing LLC
c/o Actus Lend Lease Holdings LLC
1801 West End Avenue, Suite 1700
Nashville, TN 37203
Attention: Army Alaska Project Director

with copies to:

Actus Lend Lease LLC
455 Devlin Road, Suite 100
Napa, CA 94558
Attention: Julianne Polanco
Director of Cultural Resources

and to:

Actus Lend Lease LLC
700 Lanidex Plaza
Parsippany, NJ 07054
Attention: Chief Commercial Officer or General Counsel

If to ACHP:

Mr. Don Klima, Director
Office of Federal Agency Programs
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW, Suite 803
Washington, DC 20004

IX . AMENDMENTS

Any Signatory may propose in writing to all parties that this Agreement be amended, whereupon the Signatories will consult to consider such amendment. In addition, if the terms of this Agreement are not carried out within a stated timeframe (or, if none is stated, within a reasonable timeframe), the Signatories shall convene to determine if amendments to this Agreement are necessary or appropriate. This Agreement may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy signed by all of the Signatories is filed with the ACHP.

X. TERMINATION

Any Signatory to this Agreement may terminate it by providing 30 days' written notice to each of the other Signatories, provided that the Signatories shall have consulted prior to termination to seek agreement on possible amendments or other actions that would avoid termination. Termination hereunder shall render this Agreement without further force or effect and require the USAG Fort Wainwright either to (a) consult to develop a new Programmatic Agreement pursuant to 36 CFR §

800.14(b), (b) comply with 36 CFR Part 800 for individual undertakings, or (c) request, consider, and respond to ACHP comments per 36 CFR § 800.7.

XI. ANNUAL MEETINGS

The USAG Fort Wainwright shall invite the Signatories and concurring parties to meet at least annually, beginning one year from the date of execution of this Agreement, to discuss implementation of this Agreement and other items of mutual interest if such a request for other items is made by one of the Signatories to this Agreement. The USAG Fort Wainwright shall meet with the Project Owner as needed in order to help ensure full implementation of this Agreement.

XII. DURATION

A. Subject to Section I.A of this Agreement with respect to the Project Owner, this Agreement becomes effective on the date when the last of the Signatories has signed the same.

B. This Agreement will remain in effect for so long as the Ground Lease is in effect and shall be coterminous with the Ground Lease, unless this Agreement is earlier terminated in accordance with the terms hereof. If the parties to the Ground Lease agree to extend or amend the Ground Lease, the Signatories will consult on the need to renew or amend this Agreement at the same time as the Ground Lease is being considered for renewal or amendment.

XIII. EXCUSABLE DELAYS

A. The USAG Fort Wainwright and the Project Owner may delay their performance of an obligation provided for in this Agreement, and the period for the performance of any such obligation shall be extended for a period equivalent to the period of such delay, so long as such performance is prevented or delayed, retarded or hindered by an act of God, fire, earthquake, flood, weather, explosion, war, invasion, insurrection, riot, mob violence, sabotage, act of terrorism, inability to procure or a general shortage of labor, equipment, facilities, materials or supplies in the open market, failure or unavailability of transportation, strike, lockout, action of labor unions, a taking by eminent domain, requisition, laws, orders of government or of civil, military or naval authorities, governmental restrictions (including, without limitation, access restrictions imposed by the Government or the Army and arising without fault or negligence on the part of the Project Owner that hinder the Project Owner's ability to access the Leased Premises and perform its responsibilities in a timely manner), environmental or archaeological conditions or features, inadvertent discoveries, required environmental remediation, delay or failure in issuance or performance, as applicable, of any consents, approvals, permits or other actions required from any Signatory, concurring party or other person or entity outside the USAG Fort Wainwright's or the Project Owner's control, as applicable, or any other cause, whether similar or dissimilar to the foregoing, not within the reasonable control and without the fault or negligence of the USAG Fort Wainwright or the Project Owner, as applicable (collectively, "Excusable Delays").

B. Excusable Delays include the failure of a contractor, subcontractor or vendor to furnish labor, services, materials or equipment in accordance with its contractual obligations (but solely to the extent such failure is itself due to an Excusable Delay of the type described in this

definition and not due to any fault or negligence attributable to the contractor, subcontractor or vendor).

C. In the case of any Excusable Delay, the USAG Fort Wainwright shall consult with the Project Owner and the Signatories to determine whether an amendment to this Agreement is needed to address the delay or any subsequent impact or action.

XIV. ARMY ALTERNATE PROCEDURES FOR HISTORIC PROPERTIES.

The Signatories acknowledge that the U.S. Army Garrison, Alaska, is in the process of developing and implementing certain plans and procedures relating to historic properties pursuant to the "Army Alternate Procedures for Historic Properties" (the "Alternate Procedures"), but that the Alternate Procedures, and the development and implementation thereof, shall not apply to this Agreement, or to the scope of the Undertaking as it applies or impacts any historic property located in the APE.

XV. MISCELLANEOUS

A. The following exhibits attached hereto are incorporated herein by this reference:

Exhibit 1. Description of Quarters 1 Housing Unit

Exhibit 2. Area of Potential Effect

Exhibit 3. Map of Ladd Field National Historic Landmark District

Exhibit 4. List of Exempt Activities

Exhibit 5. Map of Buffer Zone Located on Leased Premises

B. Notifications required pursuant to this Agreement shall be in writing.

C. All time periods shall be counted in calendar days unless specifically stated otherwise.

D. This Agreement may be executed in multiple original counterparts, each of which shall be deemed an original, and which together shall constitute one and the same Agreement.

[Remainder of page intentionally left blank; signature pages follow]

Approval of this Programmatic Agreement and implementation of its terms evidences that the USAG Fort Wainwright has afforded the SHPO and the ACHP an opportunity to comment on the Undertaking and its effects on historic properties, and that the USAG Fort Wainwright has taken into account the effects of the Undertaking on historic properties.

Signed:

UNITED STATES DEPARTMENT OF THE ARMY
FORT WAINWRIGHT

By: _____
Name:
Title:

Date: _____

ALASKA STATE HISTORIC PRESERVATION OFFICER

By: _____
JUDITH BITTNER
State Historic Preservation Officer
Alaska Office of Historic Preservation

Date: _____

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By:_____
JOHN M. FOWLER
Executive Director

CONCUR:

ARMY ALASKA FAMILY HOUSING LLC,
a Delaware limited liability company

By: AAFH MANAGING MEMBER LLC,
a Delaware limited liability company,
its managing member

By: ACTUS LEND LEASE HOLDINGS LLC,
a Delaware limited liability company,
its sole member

By: _____
Name:
Title:

Date: _____

NATIONAL PARK SERVICE

By: _____

Date: _____

Exhibit 1

Description of Quarters 1 Housing Unit

[SEE ATTACHED]

Building Inventory: Fort Wainwright, Alaska

AHRS NO:	FAI-00446	SITE NAME	Building 1048: Garrison Commander's Quarters
ARMY BUILDING NO:	1048		

General Property Information

Address:	At the head of the horseshoe, North Post.	**City:**	Fort Wainwright
Historic Name:			
Owner:	US Army Alaska, Fort Wainwright	**Owner Address:**	Fort Wainwright, Alaska
GPS Coordinate:	WGS84	**USGS Quad:**	Fairbanks D2

Section:	8	**Township:**	1S	**Range:**	1E
Zoning:	UTM 6N	**Northing:**	7191031.32725	**Easting:**	471167.020790

Historic Associations

Resource Type:	Building
Original Owner:	US Army Air Corps, Ladd Field
Builder:	Unknown
Significant Person:	No Known
Significant Event:	No Known
Construction Date:	1941
Date Moved:	N/A
Destruction Date:	N/A
Reconstruction Date:	N/A
Historic Function:	Domestic
Current Function:	Domestic
Cultural Affiliation:	Euro-American

NRHP STATUS

NRHP District

☑ NHL ☐ None

NHL District

☑ Contributor ☐ Non-Contributor

Evaluation Date: 1984

Reevaluation Date:

☐ **NRHP Individually Eligible**

Evaluation Date: 10/2007

Reevaluation Date:

☐ **HABS Documentation**

Level:

Recordation Date:

☐ **HAER Documentation**

Level:

Recordation Date:

Building Inventory: Fort Wainwright, Alaska

AHRS NO:	FAI-00446	SITE NAME	Building 1048: Garrison Commander's Quarters
ARMY BUILDING NO:	1048		

Architectural Information

Architectural Style: Colonial Revival

Stories: 2

Building Type: Single Family

Plan: T Shaped

Ancillary Structure:

Structural System:
Wood Frame

Roof Shape:
Hip
Gable on Hip

Other Materials:
None

Exterior Wall Materials:
Aluminum
Drop Siding

Roof Features:
Chimney
Attic Vent

Special Features:
Attached Garage

Foundation Materials:
Wood

Roof Materials:
Asphalt Shingles

Setting Description:

Cantonment, North Post. Part of original Ladd Field permanent garrison centered around the parade ground, with Building 1048 at the north end of an inverted horseshoe-shaped layout, and Building 1557 (Hangar 1) at the south end. The north end of the horseshoe was originally a residential area consisting of Commander's Quarters, Officers' family Quarters, NCO Quarters, and transient quarters. Building 1051 and Building 1045 have been converted to other uses but the horseshoe area between Gaffney and Marks roads retains its residential feeling, with green space and sidewalks. North of Marks Rd. is a WWII-era chapel (Building 1043), a recent officers' club and parking area, and the WWII-era MARS Building (Building 1024) slightly to the east. South of Gaffney Rd, Ladd Field-era admin Buildings flank the parade ground. Hangar 1 and the airfield dominate the southern end of the area. Cold War-era administration building, support buildings, and former barracks border the original horseshoe area on the east, west, and north.

Architectural Description:

Building 1048 is a Colonial Revival, T-shaped, two-story building with a composition shingle, hip roof measuring 16.8 feet by 63.9 feet with a full basement and attic. The building is clad in aluminum drop siding. The south (main) elevation illustrates the "T" shape, with a centered two-story mass jutting out the plane of the elevation, creating the "T" shape. The south elevation has an arctic entry centered with a pair of 1/1 double-hung sash windows flanking it. The second floor of the south elevation has a 1/1 double-hung sash window centered over the entry with paired 1/1 double-hung sash windows on either side. The north elevation of the building is similar to the south elevation. A gabled louver dormer is centered on the gable roof. On the north elevation is an attached garage with multiple rooflines (gable, hip, and shed). The east and west elevations have 2 1/1 double-hung sash windows evenly spaced on the first and second floors. Special features include an attached garage.

Alterations

Year	*Description*	*Comment*
	A double garage with two overhead doors was added to this building.	The date of this addition is not known.
1986	The building was resided.	

Building Inventory: Fort Wainwright, Alaska

AHRS NO:	FAI-00446	SITE NAME	Building 1048: Garrison Commander's Quarters
ARMY BUILDING NO:	1048		

Building Evaluation

Criteria Evaluations

Individual NRHP Listing Criteria Evaluation:

Building 1048 does not have any individual associations with significant events or trends in US or Alaska history. It is not associated with significant persons and it does not exemplify a type, period, or method of construction. Therefore, this building is ineligible for listing on the NRHP under any criterion.

NHL Criteria Evaluation:

The Ladd Field National Historic Landmark is listed on the NRHP under Criterion A for its role as an aircraft supply and repair depot and as a cargo and passenger flight hub for the Air Transport Command missions of WWII. Ladd Field is significant on the national level for its association with aviation and the changing role of the US in the world community during WWII. Building 1048 was included as a contributing structure to the Ladd Field National Historic Landmark.

Description of Integrity:

Building 1048 retains a low degree of architectural integrity. The integrity of materials, design, and workmanship have been lost due to exterior modifications including replacement of cladding with aluminum drop siding, replacement of windows with vinyl and a large two-bay garage attachment. The building retains integrity of location, setting, and association.

Statement of Significance:

Ladd Field NHL is nationally significant for its association with the themes of Expanding Science and Technology and the Changing Role of the US in the World. Construction began on the military post in 1938. Located near Fairbanks, Ladd Field was the first US Army airfield in Alaska and a part of the defense build-up for WWII in the territory. The military post is associated with the development of cold weather aviation technology and played a supporting role in the Aleutian Campaign of WWII in the Pacific. Ladd Field was also the Alaskan headquarters for the Alaska-Siberia (ALSIB) Lend-Lease route over which the US sent thousands of military aircraft to the Soviet Union for use in the Eastern Front of the war in Europe. The period of significance begins in 1940 when the airfield became operational and extends to late 1945 when WWII ended. Ladd Field, originally established as an Army Air Corps cold weather testing station, began operations in 1940. From 1942 to 1945, in a unique high priority mission, the airfield was the transfer point for over 7,900 Lend-Lease aircraft bound for the USSR on the Alaska–Siberia (ALSIB) route. After WWII, the alliance between the US and the USSR rapidly ended. The Cold War standoff took its place, re-shaping the mission and infrastructure of Ladd Field. The Ladd Field National Historic Landmark is listed on the NRHP under Criterion A for its role as an aircraft supply and repair depot and as a cargo and passenger flight hub for the Air Transport Command missions of WWII. Ladd Field is significant on the national level for its association with aviation and the changing role of the US in the world community during WWII. Building 1048 is considered a contributing element of the Ladd Field NHL.

Bibliographical References:

Fort Wainwright Building Inventory Card. Alaska Heritage Resources Survey. Architectural Inventory Form. Col. James D. Bush, Jr., Narrative Report of Alaska Construction 1941-1944, 1984. Thompson, Erwin N., National Register of Historic Places Nomination Form for Ladd Field Historic Landmark, Alaska, National Park Service, 1984. Price and Sackett, "Northern Defenders: Cold War Context of Ladd Air Force Base, Fairbanks, Alaska 1947–1961," 2001. CH2M HILL and Northern Land Use Research, Draft Report, "The Cold War Historic Context of Fort Wainwright and Ladd Air Force Base, 1946–1991," 2007.

Building Inventory: Fort Wainwright, Alaska

AHRS NO:	**FAI-00446**	**SITE NAME**	**Building 1048: Garrison Commander's Quarters**
ARMY BUILDING NO:	**1048**		

PHOTOGRAPHS

Photo Year: 2006 Description: East elevation

Photo File: 1048 - e elev.jpg

Building Inventory: Fort Wainwright, Alaska

AHRS NO:	**FAI-00446**	**SITE NAME**	**Building 1048: Garrison Commander's Quarters**
ARMY BUILDING NO:	**1048**		

Photo Year: 2006 Description: North elevation

Photo File: 1048 - n elev.jpg

Building Inventory: Fort Wainwright, Alaska

AHRS NO:	**FAI-00446**	SITE NAME	Building 1048: Garrison Commander's Quarters
ARMY BUILDING NO:	1048		

Photo Year: 2006 Description: Southeast oblique

Photo File: 1048 - se obliq.jpg

Exhibit 2

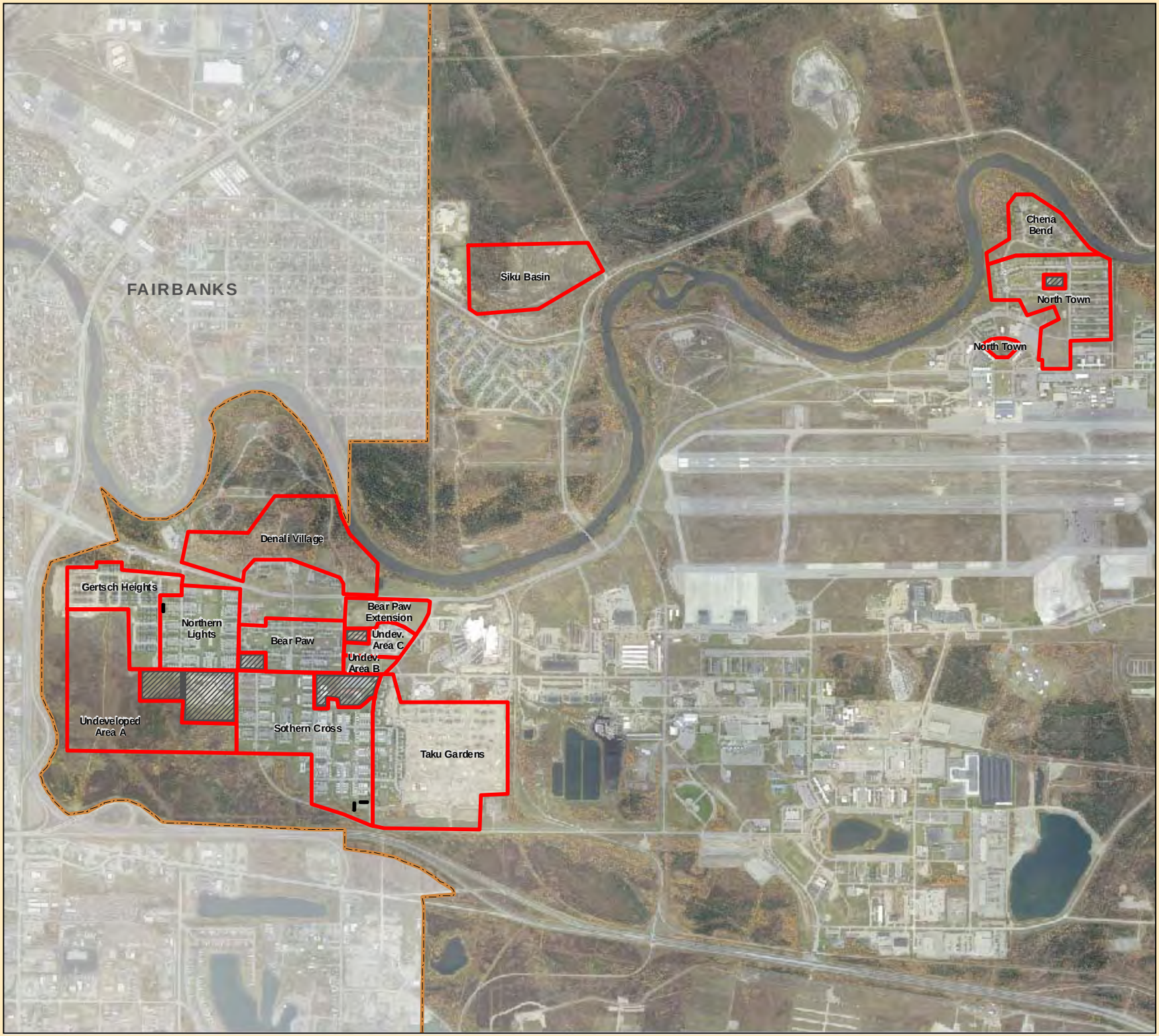
Area of Potential Effect

[SEE ATTACHED]

RCI PROJECT AREAS

Cantonment Area
Fort Wainwright, Alaska.

USAR Alaska GIS
Fort Wainwright, Alaska.
DPW & LOG 3123



Legend

- Building not to be Conveyed
- Installation Boundary
- Parcel not to be Conveyed
- RCI Property

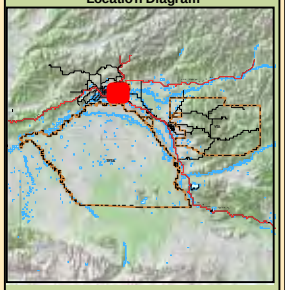
UTM Zone 6N
WGS 1984
Meters

1:25,025

0 0.05 0.1 0.2 0.3 0.4
Miles

0 0.1 0.2 0.4 0.6 0.8
Kilometers

Location Diagram



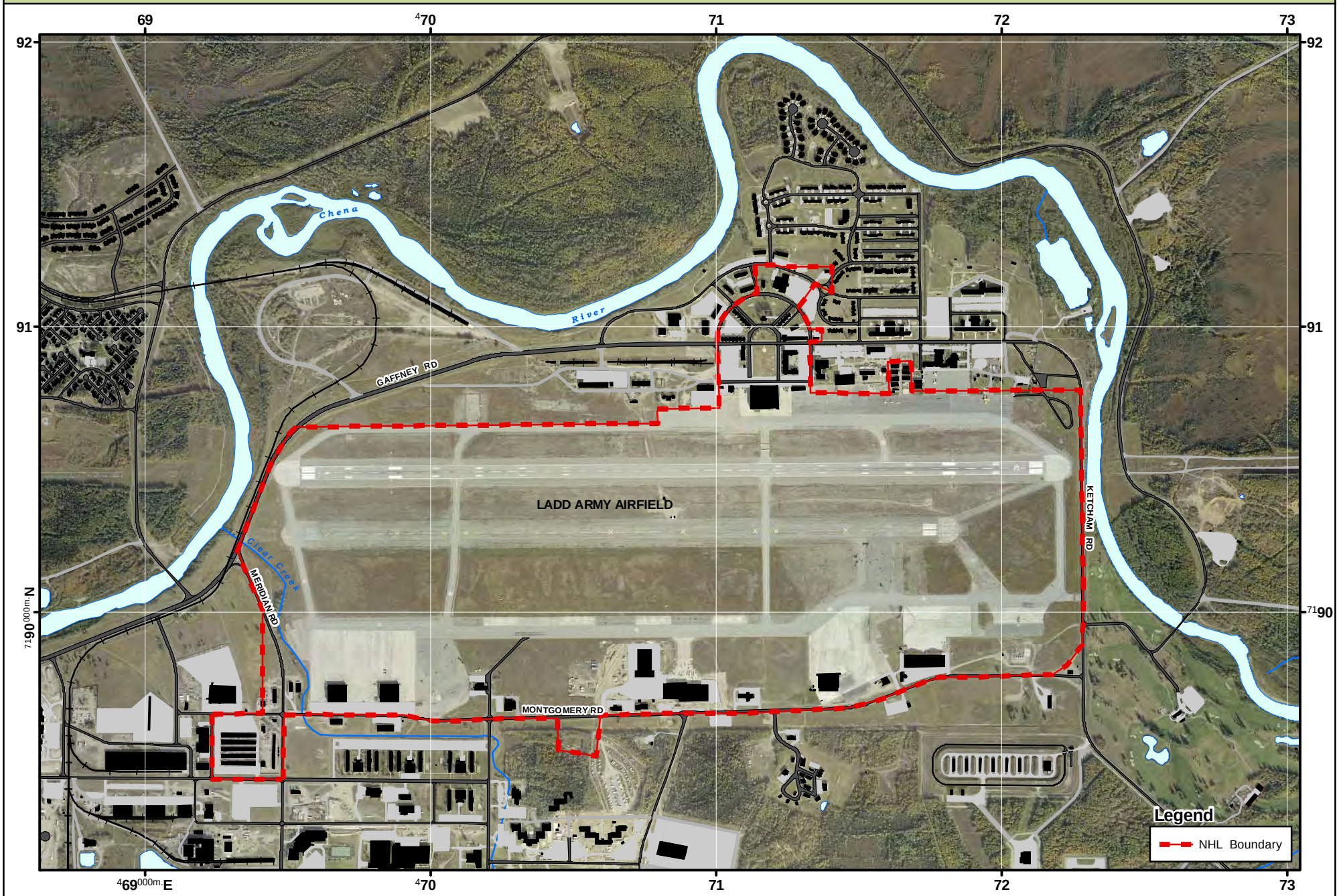
PrintDate: 9/18/2008
Author: DDS (907)361-3551
FileName: RCI_Areas_080808_letter.mxd
Dir: FIGS_Projects\Fort_Wainwright\Cantonment

Exhibit 3

Map of Ladd Field National Historic Landmark District

[SEE ATTACHED]

Ladd Field National Historic Landmark



USAR Alaska GIS
Fort Wainwright, Alaska.
BLDG 3023 (907) 361-3551

WGS 1984
UTM Zone 6N
Gridline: 1,000 meters

0 0.15 0.3 0.6 0.9 1.2
Miles

0 0.15 0.3 0.6 0.9 1.2
Kilometers

Date: 4/7/2008

Author: DDS (907)361-3551

FileName: FWANationalHistoricalLandmark.mxd
Dir: G:\GIS_Projects\Cultural_Resources

Exhibit 4

List of Exempt Activities

The USAG Fort Wainwright has determined that the following activities, when conducted in accordance with the Secretary of the Interior's Standards and the National Park Service Preservation Briefs, will not adversely affect historic properties located in the APE. The Project Owner is not required to consult with the USAG Fort Wainwright, the SHPO and/or other consulting parties prior to undertaking any of the activities listed below.

1. General operation and routine and cyclical maintenance of the exterior of historic properties. Examples of activities that fall into this category include:

a) caulking, weather-stripping, re-glazing, scraping and/or repainting of windows.

b) repair or in-kind (matching the replaced feature in design, color, texture, materials, finish and other physical and visual characteristics) replacement of gutters and downspouts;

c) repair or replacement in-kind of asphalt, fiberglass shingle, asbestos, clay tile, or metal roof; replacement of structural roof components or decking; flashing; and replacement of a flat roof not visible from a public right-of-way;

d) repair or replacement in-kind of exterior wood elements that match the original in composition, size, and profile.

e) repair or replacement in-kind of porch features such as lighting, brackets, railing balusters, posts, columns, steps, stoops, and flooring;

f) replacement of window glass as long as replacement does not alter exterior appearance or existing window glazing rabbets, and has the same reflectivity as the existing glass;

g) maintenance of features such as window and door frames, cornices, hood molds, jambs, and moldings through appropriate surface treatments, such as cleaning, non-abrasive rust or paint removal, and in-kind reapplication of protective coating systems;

h) painting exterior surfaces and removal of damaged or deteriorated paint to the next sound layer using the gentlest methods possible, provided the underlying historic fabric is not damaged;

i) replacement of wiring, conduit, wiring devices, transformers and related electrical systems;

j) removal, repair, or replacement of air-conditioning equipment where action does not affect historic materials or design;

k) cleaning and in-kind repair of chimneys and flues; and

l) repair or replacement in-kind of historic attic vents in original openings and installation of new ridge vents when new roofing is installed.

2. General operation and routine and cyclical maintenance of interior spaces within historic properties. Examples of activities that fall into this category include:

a) changes to mechanical, electrical, ventilation, plumbing, and life safety systems provided such changes do not affect any exterior or character-defining features. Electrical and communication wiring shall be run inside the walls or baseboards, not in conduit (wire mould) on the wall surface;

b) treatment of interior surfaces (floors, walls, ceilings, stairs, decorative plaster, woodwork, and carpet) provided the work is limited to in-kind repair, patching, repainting, and refinishing. When plaster repair is not feasible, install smooth finish drywall in the same plane as the plaster;

c) treatment of interior features (doors, moldings, fireplaces, mantles, hardware) provided the work is limited to in-kind repair, patching, repainting, and refinishing;

d) heating system repair or replacement including but not limited to furnaces, pipes, and ducts;

e) installation of insulation in floors, attics, and openings and installation in side walls from the interior with an appropriate vapor barrier on the inside. In locations where blown insulation is the optimal or only possible method of installation, an equivalent vapor barrier shall be created by assuring interior wall surfaces are covered with an impermeable paint layer on all interior surfaces. The paint layer must cover all interior surfaces adjacent to the newly installed wall insulation. Special attention shall be given to rooms that are major sources of interior moisture – the laundry room, bathrooms and kitchen;

f) repair or replacement of non-historic kitchen and bathroom fixtures, to include installation of new countertops and kitchen cabinets. If any historic kitchen or bathroom fixtures become unusable and must be replaced they will be turned over to the Army for storage for future reuse in similar properties;

g) control of insects, rodents or other pests provided the method used does not physically or visually impact the historic fabric of the building;

h) installation of standard light fixtures to replace missing or broken interior and exterior lighting fixtures. Where public spaces within buildings (entryways, parlors, grand vestibules) may have had or can accept more elaborate or “period” fixtures, such fixture will be appropriate in scale, material and overall appearance;

i) lead-based paint and asbestos surveying and abatement activities, including paint chip and core sampling, and abatement/remediation prior to construction or renovation; and

j) installation of simple, undecorated, full view storm doors.

3. Repair, or replacement in-kind of non-historic vestibules, fire escapes, and similar elements.

4. Temporary installation of facilities to provide access for disabled persons, provided those installations are of historically compatible design, make no permanent modifications to buildings, cause no loss of historic fabric, and may be removed when no longer required by housing occupants or when change of occupancy occurs.

5. Installation of utilities, such as water, sewer, electrical, gas, and septic tanks, where installation is restricted to areas previously disturbed by installation of such utilities and done in accordance with the terms of this agreement with respect to ground disturbing activities.

6. Installation of communication systems, including drilling holes in walls for cable, computers and phones; and mounting of satellite dishes on posts or railings.

7. General operation and routine and cyclical maintenance of landscapes within the Leased Premises in a manner consistent with the Secretary of the Interior's Guidelines for the Treatment of Historic Landscapes, including but not limited to:

a) maintenance or replacement in-kind of trees, shrubs, and turf;

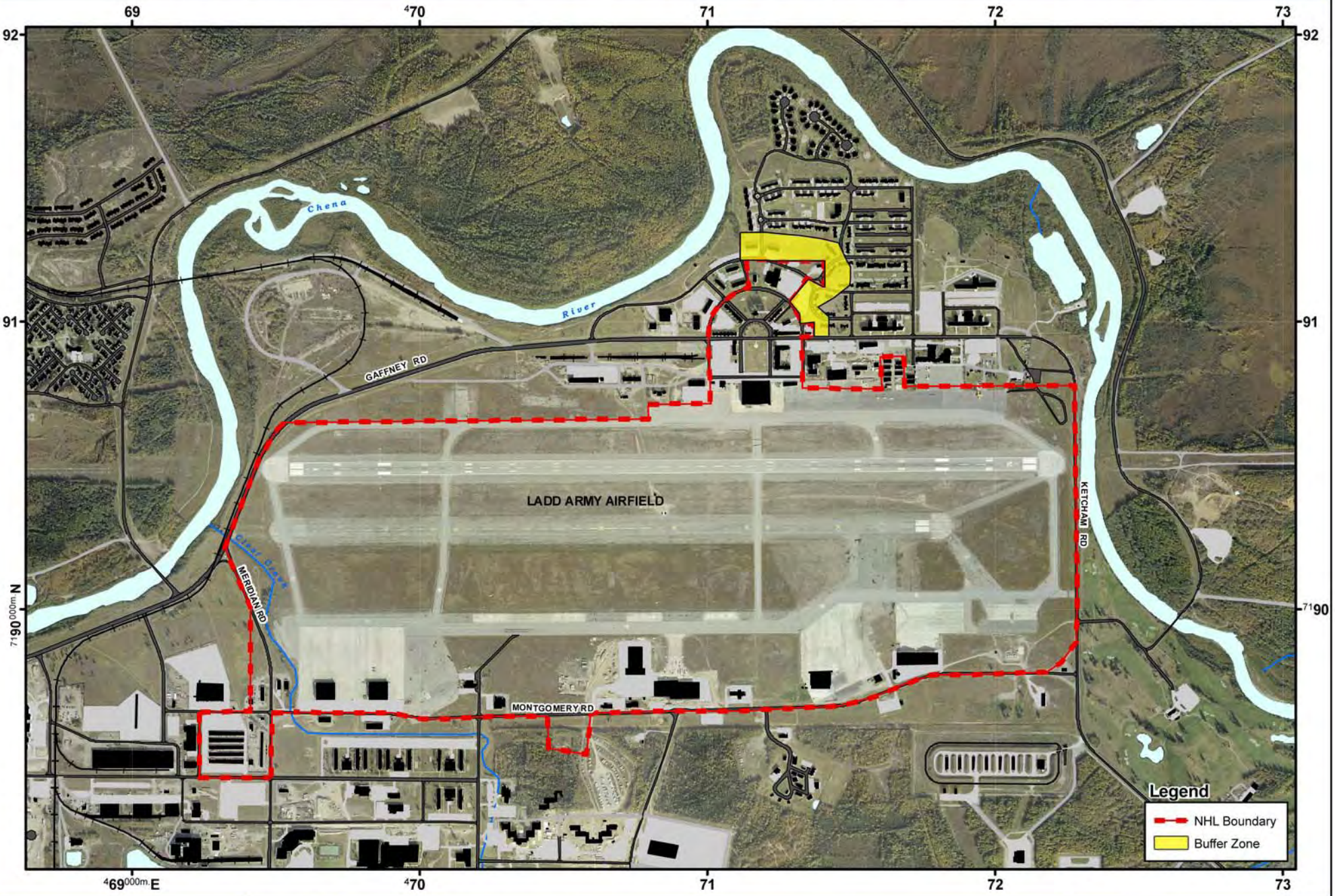
b) repair and maintenance of positive drainage flow away from building.

Exhibit 5

Map of Buffer Zone Located on Leased Premises

[SEE ATTACHED]

Ladd Field National Historic Landmark



USAR Alaska GIS
Fort Wainwright, Alaska.
BLDG 3023 (907) 361-3551

WGS 1984
UTM Zone 6N
Gridline: 1,000 meters

0 0.15 0.3 0.6 0.9 1.2
Miles

0 0.15 0.3 0.6 0.9 1.2
Kilometers

Date: 4/7/2008
Author: DDS (907)361-3551
FileName: FWANationalHistoricalLandmark.mxd
Dir: G:\GIS_Projects\Cultural_Resources

Ladd Field National Historic Landmark

The Ladd Field National Historic Landmark (NHL) was established in 1985 in recognition of its World War II (WWII) contributions. Designed as a small, permanent cold weather testing facility, the "original facilities included a 5,000-foot concrete runway and aircraft parking apron, nine administration and housing buildings, six technical buildings, a medical corps building, and tactical fuel storage," with utilities installed below ground in utilidors, a rail spur connected to the Alaska Railroad, and an access road connected to the Richardson Highway (Price 2004). The original layout of buildings was horseshoe-shaped and in the Beaux Arts style, with the airfield as the central focus of the design (Price 2004). As WWII commenced, construction at Ladd Field sped up and the base began to expand from its original six-square-mile area while taking on more wartime efforts. The NHL "includes the airfield; horseshoe-shaped command, industrial, and flight service facilities (known as North Post) located north of the airfield; and perimeter buildings on the south side of the airfield, including hangars, maintenance shops, warehouses, and an ammunition storage facility (igloo)." (Buzzell 2000)

Ladd Field meets Criteria A of the National Register of Historic Places (NRHP) and "is nationally significant for its association with the themes of Expanding Science and Technology and the Changing Role of the United States in the World." (Buzzell 2000) The period of significance for the NHL extends from the initiation of operations at the base in 1940 to the end of WWII in 1945. During that time, Ladd Field participated in a variety of wartime activities, including three that have contributed to its national significance: Its role as a cold weather test station, its role as a WWII air depot, and its role in the Alaska-Siberia Lend-Lease Program Operations.

As a cold weather test station, Ladd Field's personnel developed methods of conducting operations and maintaining equipment in the harsh Alaska conditions. "The detachment's primary goal during [WWII] was to improve the cold weather performance of all aspects of aircraft and armament in the AAF [Army Air Force] inventory" (Price 2004) Over 700 personnel conducted tests on 22 different types of aircraft and associated equipment to better them for operations in cold, severe climate conditions. Testing was conducted in labs and in the field, but more often outdoors at first because Ladd Field's facilities were still being completed. During the first winter of the cold weather program, "personnel made a series of observations on Alaskan flying weather and conditions, airplane maintenance and operation, motor transport, clothing, communications, medical issues, and photographic and survival equipment" (Price 2004) As a result, guidelines for cold weather operations were developed, including parking aircraft outdoors, preventing frost buildup by covering the wings and tails, briefly diluting engine oil, using oil immersion heaters, and preheating engines before they were started. Later, a 1942 winterization directive addressed similar issues, as well as a variety of others regarding aircraft function and maintenance.

Through other testing, cold weather military clothing, equipment, and weapons were also developed, with the assistance of well-known explorers of the time and local Alaskans, both Native and non-Native.

After the December 7, 1941 attack on Pearl Harbor Ladd Field was placed on wartime status. The base became established as an air depot by the 11th Air Force, and the men of the Cold Weather Testing Program aided wartime efforts by repairing Alaska-defensive military aircraft (Buzzell 2000). However, when the Japanese began to occupy the Aleutian islands in June 1942, the Cold Weather Test Detachment was disbanded and ordered to participate in the regional defense (Price 2004).

Between 1942 and 1945, Ladd Field served as the official transfer point for American aircraft to be turned over to the Soviet Union on the Alaska-Siberia Lend-Lease Program route (Price 2004). The lend-lease program was established in 1941 to provide war supplies to Great Britain in support of war efforts. In 1941, after Germany attacked the Soviet Union, the program was extended to the Soviets, providing heavy war material and aircraft. The Alaska-Siberia Lend-Lease Program route provided the safest and most strategic of the various lend-lease routes. American pilots would fly the newly manufactured planes from Great Falls, Montana, to Ladd Field in Fairbanks, with stops along the Northwest Staging Route, the pioneer inland air route through western Canada. Ladd Field was selected as the point of transfer of the planes to the Soviet military since it was more protected from potential Japanese attack (Price 2004). Once Soviet military had taken delivery, they would make sure the planes met specific standards, fly to the Siberian end of the route, and then farther west to fight on the war front.

The structures remaining within "the historic district that retain integrity from the 1940-1945 period affirm Ladd Field's national significance as a cold weather aviation test facility, its contribution as a support base for the Aleutian Campaign of the War in the Pacific, and its role as the most significant base on the Alaska-Siberia route of the lend-lease program" (Buzzell 2000) The following table lists the contributing elements of the Ladd Field NHL and their status (existing or demolished) according to the 1984 nomination and more recent work undertaken to update the NHL (Buzzell 2000; Price 2005).

Contributing Buildings and Structures to the Ladd Field NHL			
Building Number	**Historic Name**	**Status**	**Location**
		Existing Resources	
1021	Nurses Quarters	Extant	North Post
1024	Radio Station	Extant	North Post
1043	Chapel	Extant	North Post
1045	BOQ	Extant	North Post
1046	Garage	Extant	North Post
1047	Officers Quarters	Extant	North Post
1048	Commander's Quarters	Extant	North Post
1049	NCO Quarters	Extant	North Post
1051	NCO Quarters	Extant	North Post
1533	Butler Whse/CWT	Extant	NE airfield
1534	Butler Whse/CWT	Extant	NE airfield
1537	Butler Whse/CWT	Extant	NE airfield
1538	Butler Whse/CWT	Extant	NE airfield
1539	Butler Whse/CWT	Extant	NE airfield
1540	Butler Whse/CWT	Extant	NE airfield
1555	Post Hospital/Barracks	Extant	North Post
1556	Butler Whse/CWT	Extant	North Post
1557	Hangar One	Extant	North Post
1558	Gas/Utility Building	Extant	North Post
1562	Quartermaster Building	Extant	North Post
3018	Butler Building	Extant	SW NHL
3019	Butler Building	Extant	SW NHL
3021	Butler Building	Extant	SW NHL
3022	Butler Building	Extant	SW NHL
	North and South Runways	Extant	
	Aprons and Taxiways	Extant	

Contributing Buildings and Structures to the Ladd Field NHL			
Building Number	**Historic Name**	**Status**	**Location**
	North Post Utilidor System	Extant	
	Primary Roads (Meridian, Montgomery, Ketcham, Gaffney, Marks, and Freeman)	Extant	
Resources Proposed for Demolition			
3020	Butler Building	Extant/Mitigated for Demolition	SW NHL
3005	Birchwood Hangar	Extant/Proposed for Demolition	SW airfield
3008	Birchwood Hangar	Extant/Proposed for Demolition	SW airfield
3028	Butler Building	Extant/Mitigated for Demolition	SW NHL
3203	Ammo Storage	Extant/Proposed for Demolition under Current Project	S of airfield
Demolished Resources			
1050	Post Office	Demolished	North Post
1541	Aircraft Maintenance Shop	Demolished	NE airfield
1542	Kodiak T-Hangar	Demolished	NE airfield
1543	Kodiak T-Hangar	Demolished	NE airfield
1560	Service Club	Demolished	North Post
1561	Power Plant	Demolished	North Post
2085	Birchwood Hangar	Lost to fire in 2004	SE airfield
3006	Butler Building	Demolished	SW airfield
3007	Butler Building	Demolished	SW airfield
3009	Butler Building	Demolished	SW airfield
3200	Ammo Storage	Demolished	S of airfield
3201	Ammo Storage	Demolished	S of airfield
3204	Ammo Storage	Demolished	S of airfield
	Hardstands	Demolished	

Ladd Air Force Base Historic District

The Ladd Air Force Base (AFB) Historic District represents the significance of Cold War events that took place between 1947 and 1960 at the base (note, however, that the Cold War is considered to have lasted from 1946 to 1989). While the district's boundaries include and extend beyond those of Ladd Field NHL, it is considered and managed as a separate resource eligible for listing on the NRHP. Although the district has not been formally accepted to the NRHP, it is managed as if it were listed.

As part of the US Cold War efforts, the Strategic Air Command organized an air unit at Ladd Field in 1946 to begin developing a polar navigation system (US Army, not dated b). Ladd Field was later designated as an Air Force Base in 1947. The technology developed here aided in a mission to map Soviet radar capabilities and develop countermeasures. Although Ladd Field was considered an Air Force Base, the Army's mission continued at the same location, developing antiaircraft and ground defense, cold weather training, and emergency preparedness for nuclear attack (US Army, not dated b). After the Air Force transferred its operations to Eielson AFB in 1961, Ladd Field was transferred back to the Army, allowing it to expand its cold weather testing and training program.

The buildings in the following table were determined NRHP-eligible in 2001 and are considered contributing elements to the Ladd AFB Historic District, which overlaps with the Ladd Field NHL and shares many contributing features (Price 2005).

Contributing Buildings and Structures to the Ladd AFB Historic District

Building Number	Historic Name	Status
	Existing Resources	
1001	Barracks	Extant
1004	Barracks	Extant
1021	Personnel Svcs	Extant
1024	Ops Management Trng	Extant
1040	BOQ 5	Extant
1041	BOQ 4	Extant
1042	BOQ 3	Extant
1043	Chapel	Extant
1045	VIP Housing	Extant

Contributing Buildings and Structures to the Ladd AFB Historic District		
Building Number	**Historic Name**	**Status**
1047	Officers Quarters	Extant
1048	Commander's Quarters	Extant
1049	NCO Quarters	Extant
1051	NCO Quarters	Extant
1053	Electric Shop	Extant
1054	Motor Pool	Extant
1059	Motor Pool	Extant
1060	Air Defense Cmd Ctr	Extant
1538	Special Investigation	Extant
1555	Headquarters	Extant
1556	Engine Shop	Extant
1557	Hangar One	Extant
1558	Airfield Ops	Extant
1562	AF Service Stores	Extant
1565	Refueling Maintenance	Extant
1579	BOM Warehouse	Extant
1595	Machine Shop	Extant
2077	Hangars 7 and 8	Extant
2104	Falcon Missile section	Extant
2079	Flight Comm	Extant
2201	Ordnance Storage	Extant
2202	Ordnance Storage	Extant
2203	Ordnance Storage	Extant
2204	Ordnance Storage	Extant
2205	Ordnance Storage	Extant
2206	Ordnance Storage	Extant
2207	Ordnance Storage	Extant

Contributing Buildings and Structures to the Ladd AFB Historic District		
Building Number	**Historic Name**	**Status**
3018	Butler Building	Extant
3019	AF Service Stores	Extant
3021	Butler Building	Extant
3022	Butler Building	Extant
3595	Power Plant	Extant
3700	Golden North Club	Extant
3701	Base Exchange	Extant
3706	Barracks	Extant
3707	Bn HQ	Extant
3708	Barracks	Extant
3711	Barracks	Extant
3712	Bn HQ	Extant
3713	Barracks	Extant
3716	Barracks	Extant
3717	Dining Hall	Extant
3718	Barracks	Extant
3719	Barracks	Extant
3720	Barracks	Extant
3721	Barracks	Extant
3722	Bn HQ	Extant
3723	Barracks	Extant
4070	Arctic Aeromedical Lab	Extant
	North and South Runways	Extant
	Taxiways	Extant
Resources Proposed for Demolition		
2107	Flight Simulator	Extant/Proposed for Demolition
3005	Birchwood Hangar	Extant/Proposed for

Contributing Buildings and Structures to the Ladd AFB Historic District		
Building Number	**Historic Name**	**Status**
		Demolition
3008	Birchwood Hangar	Extant/Proposed for Demolition
3020	AF Service Stores	Extant/Mitigated for Demolition
4069	Arctic Aeromedical Lab	Extant/Proposed for Demolition
Demolished Resources		
1050	Post Office	Demolished
1560	Service Club	Demolished
2085	Birchwood Hangar	Lost to fire in 2004
2106	Hangars 4 and 5	Demolished
3006	Butler Building	Demolished
3009	Butler Building	Demolished

APPENDIX D
Draft Record of Nonapplicability

Draft

Record of Nonapplicability for Implementation of the Army Residential Communities Initiative, Fort Wainwright

In accordance with the Army Residential Communities Initiative (RCI) program, Fort Wainwright proposes to transfer responsibility for providing family housing and ancillary supporting facilities to Actus Lend Lease. Fort Wainwright proposes to convey via lease 1,850 family housing units to Actus Lend Lease and to provide Actus Lend Lease with a 50-year lease of the underlying land, approximately 626 acres. Of the 1,850 family housing units, 1,540 currently exist; ongoing construction activities would eventually increase the housing inventory by 310 units. Actus Lend Lease would take the following actions: renovate 321 units; demolish 685 units; construct 524 new housing units; and construct a new welcome center/community center. Demolition, construction, and building renovations would occur between 2009 and 2013. As a result of Actus Lend Lease actions, Fort Wainwright would have a final family housing inventory of 1,689 units, a decrease of 161 units, or 8.7 percent, from the initial housing inventory.

The Main Post of Fort Wainwright is located about 120 miles south of the Arctic Circle, on the east side of Fairbanks, AK. The Fairbanks area, including most of the Main Post at Fort Wainwright, is currently designated as a carbon monoxide maintenance area. Available air quality monitoring data from Fairbanks indicates that the Fairbanks area exceeds the recently revised federal ambient air quality standard for fine particulate matter ($PM_{2.5}$). The Alaska Department of Environmental Conservation, Division of Air Quality expects the Fairbanks area to be designated as nonattainment for the federal $PM_{2.5}$ standard by 2010. The Fairbanks area is either unclassified or in attainment for all other federal ambient air quality standards.

The proposed Army action has been evaluated for compliance with Section 176(c) of the Clean Air Act (42 USC 7506) and with the US Environmental Protection Agency (EPA) rule promulgated at 40 CFR Part 93.

The environmental assessment (EA) prepared for the proposed action estimates the quantities of direct and indirect emissions resulting from demolition, construction, and operational activities. Because the proposed action would not increase the housing inventory or the residential population at Fort Wainwright, operational emissions from occupancy and vehicle travel associated with family housing units at Fort Wainwright would not have any net increase over existing emissions. There would be a net increase in criteria pollutant emissions at Fort Wainwright due to demolition and construction activities associated with the RCI program. The maximum annual increase in carbon monoxide emissions would be less than the Clean Air Act conformity de minimis level for carbon monoxide maintenance areas (100 tons per year). In addition, the maximum annual $PM_{2.5}$ emissions would be less than the Clean Air Act conformity de minimis level for $PM_{2.5}$ nonattainment areas (100 tons per year). The proposed action at Fort Wainwright would be subject to Clean Air Act conformity review for $PM_{2.5}$ only of the $PM_{2.5}$ nonattainment designation for the Fairbanks area takes effect before completion of the NEPA process for the proposed action.

Pursuant to 40 CFR 93.153(c)(1), I find that the requirements of the EPA general conformity rule are not applicable to the proposed Army action.

_____ _____

TIMOTHY A. JONES Date
Colonel, US Army
Commander, Fort Wainwright

APPENDIX E
Draft Finding of No Practicable Alternative

Draft

Finding of No Practicable Alternative
Implementation of the Army Residential Communities Initiative, Fort Wainwright Alaska

Pursuant to Executive Order 11988 (Floodplain Management), in order for the Army to construct family housing units in a floodplain, it must find that there are no practicable alternatives to doing so and that all practicable measures have been taken to minimize harm to the floodplain. The practicability of a given alternative or measure is evaluated by considering such pertinent factors as community welfare, cost, environmental impact, and technological feasibility in light of the overall project purposes. This finding of no practicable alternative incorporates by reference the *Environmental Assessment of Implementation of the Army Residential Communities Initiative, Fort Wainwright, Alaska* and its findings with respect to the proposed action.

The Army determined that the nine family housing neighborhoods, as the only on-Post family housing areas, are the only reasonable location for the proposed action, which involves redevelopment of family housing areas. Most of the RCI footprint is within the 100-year floodplain of the Chena and Tanana Rivers. Pursuant to Executive Order 11988, the Army would take all practicable measures to minimize potential harm to or within the floodplain. The RCI footprint is protected by levees, swales, and melt channels and is part of the Chena River Flood Control Project. The flood control project eliminates or minimizes potential risks of flood loss and lessens the impact of floods on human safety, health, and welfare. This complies with Executive Order 11988, 23 CFR Part 650.105(k), Army regulations, and the guidance contained in 42 FR 26951. The cumulative effect of the proposed development would not create an obstruction to the floodplain, increase the water surface elevation of the base flood, or increase the flood heights or velocities.

Based on the pertinent considerations discussed herein, the Army hereby finds that there are no practicable alternatives to constructing the family housing units within the nine family housing neighborhoods at Fort Wainwright's Main Post. Furthermore, pursuant to Executive Order 11988, the Army will take all practicable measures to minimize potential harm to or within the floodplain at the proposed project locations.

_____ _____

TIMOTHY A. JONES Date
Colonel, US Army
Commander, Fort Wainwright

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-containing material
ADEC	Alaska Department of Environmental Conservation
ADT	average daily traffic
AFB	Air Force Base
AKRR	Alaska Railroad
APE	area of potential effect
AR	Army Regulation
AST	aboveground storage tank
AV/SVE	air sparging/soil vapor extraction
BAH	basic allowance for housing
BLM	US Bureau of Land Management
BMP	best management practice
BOCA	Building Officials and Code Administrators
CAA	Clean Air Act
CDMP	Community Development and Management Plan
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	methane
CHPP	Central Heating and Power Plant
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CRM	Cultural Resource Manager
DA	Department of the Army
dB	decibel
dBA	A-weighted decibel
DNL	day-night average sound level
DoD	Department of Defense
DPW	Directorate of Public Works
EA	environmental assessment
ECP	Environmental Condition of Property
EFH	Essential Fish Habitat
EIFS	Economic Impact Forecast System
EPA	US Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FFA	Federal Facilities Agreement
FIA	Fairbanks International Airport
FICUN	Federal Interagency Committee on Urban Noise
FNSB	Fairbanks North Star Borough
FNSI	finding of no significant impact
GHG	greenhouse gas

HUD	US Department of Housing and Urban Development
IAP	Installation Action Plan
ICRMP	Integrated Cultural Resources Management Plan
IENMP	installation environmental noise management plan
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
LBP	lead-based paint
Leq	equivalent noise level
LLC	limited liability company
LOS	level of service
$\mu g/ft^2$	micrograms per square foot
m/s^2	meters per square second
MBTA	Migratory Bird Treaty Act
MEC	munitions and explosives of concern
MGD	million gallons per day
MHPI	Military Housing Privatization Initiative
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSW	municipal solid waste
MW	megawatt
N_2O	nitrous oxide
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
OSHA	Occupational Safety and Health Administration
PA	programmatic agreement
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PCPI	per capita personal income
PGA	peak ground acceleration
PM_{10}	inhalable particulate matter
$PM_{2.5}$	fine particulate matter
POL	petroleum, oil, and lubricants
ppm	parts per million
psi	pounds per square inch
PX	post exchange store
RCI	Residential Communities Initiative
RCRA	Resource Conservation and Recovery Act
RFQ	Request for Qualifications
ROI	region of influence
RONA	Record of Nonapplicability
RTV	rational threshold value
SHPO	State Historic Preservation Office

SPiRiT	Sustainable Project Rating Tool
SWPPP	stormwater pollution prevention plan
TCE	trichloroethene
TCP	Traditional Cultural Property
TSCA	Toxic Substances Control Act
USC	United States Code
USFWS	US Fish and Wildlife Service
UST	underground storage tank
WAMCATS	Washington-Alaska Military Cable Telegraph System