Environmental Assessment

North Pole Road/Rail Crossing Reduction Project

March 2012
NORTH POLE ROAD/RAIL CROSSING REDUCTION PROJECT

ENVIRONMENTAL ASSESSMENT

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LIST OF ACRONYMS

ADEC.................................................................State of Alaska Department of Environmental Conservation
ADF&G ..............................................................Alaska Department of Fish and Game
ADNR .............................................................................. State of Alaska Department of Natural Resources
ADOT&PF ...............................................................State of Alaska Department of Transportation and Public Facilities
ADT .............................................................average daily traffic
APDES .................................................................Alaska Pollutant Discharge Elimination System
ARRC ...........................................................................Alaska Railroad Corporation
AS ................................................................................. Alaska Statute
BMPs .................................................................Best Management Practices
CFR .................................................................................. Code of Federal Regulations
CO ......................................................................................... carbon monoxide
dBA .................................................................................... decibels
DLWD ................................................................. Department of Labor and Workforce Development
DWPA .................................................................Drinking Water Protection Area
EA ......................................................................................... Environmental Assessment
EFH ............................................................................. Essential Fish Habitat
EIS ..................................................................................... Environmental Impact Statement
FARLR ................................................................. Fairbanks Area Rail Line Realignment
FEMA ........................................................................ Federal Emergency Management Agency
FHWA .................................................................Federal Highway Administration
FMATS .................................................................Fairbanks Metropolitan Area Transportation System
FNSB .................................................................Fairbanks North Star Borough
FONSI .................................................................Finding of No Significant Impact
FRA .................................................................Federal Railroad Administration
FTA .................................................................Federal Transit Administration
GVEA .................................................................Golden Valley Electric Association
H&H .................................................................Hydrologic and Hydraulic
L_{dn} ................................................................................. average day-night sound level
L_{eq} ................................................................................equivalent noise level
MP .................................................................milepost
LEDPA .................................................................Least Environmentally Damaging Practicable Alternative
mph .................................................................miles per hour
NEPA ........................................................................ National Environmental Policy Act
NMFS .................................................................National Marine Fisheries Service
NRE .................................................................Northern Rail Extension
PM .................................................................particulate matter
ROW .................................................................right-of-way
SHPO .................................................................State Historic Preservation Officer
SWPPP .................................................................Stormwater Pollution Prevention Plan
U.S. .................................................................United States
U.S.C .................................................................United States Code
USACE .................................................................United States Army Corps of Engineers
USAG FWA .............................................................United States Army Garrison, Fort Wainwright, Alaska
USDOT .................................................................United States Department of Transportation
USEPA .................................................................United States Environmental Protection Agency
USFWS .................................................................United States Fish and Wildlife Service
UXO .................................................................Unexploded Ordinance
VdB .................................................................velocity decibels
EXECUTIVE SUMMARY

The Alaska Railroad Corporation (ARRC) proposes to reduce the number of crossings on a portion of its Eielson Branch through North Pole, Alaska. The proposed project is referred to as the North Pole Road/Rail Crossing Reduction Project. The project study area is located in the Fairbanks North Star Borough (FNSB) and involves one segment of a realignment project previously considered (the Eielson Branch Realignment) and is also Phase 1 of the much larger Fairbanks Area Rail Line Realignment project. In 2010, funding became available to conduct preliminary engineering and preparation of this EA for the North Pole Road/Rail Crossing Reduction Project. Funding has not been secured for construction of Phase 1 or for preliminary engineering and environmental analyses for Phases 2 and 3. However, efforts by ARRC and the FNSB to identify funding sources and seek funding are ongoing.

This Environmental Assessment (EA) describes and analyzes potential environmental impacts associated with the Proposed Action and reasonable alternatives, including the No-Action Alternative, in accordance with the National Environmental Policy Act (NEPA). The Federal Railroad Administration (FRA) is the lead federal agency. In addition, the Federal Highway Administration (FHWA), United States Army Corps of Engineers (USACE), and FNSB are cooperating agencies in the preparation of this EA, and the City of North Pole is a participating agency.

Purpose and Need

The purpose of the project is to enhance public safety, reduce transportation conflicts, and improve ARRC’s operating efficiency while ensuring continued rail access to existing and potential future ARRC customers and minimizing impacts to businesses and property owners.

There is a need to improve vehicular and pedestrian safety at the numerous at-grade crossings in the project corridor. A reduction in the number of the heavily used at-grade crossings would decrease inherent safety concerns associated with crossings, including the potential for train and vehicular/pedestrian traffic accidents. Safety would also be enhanced by reducing the potential for delays to emergency response vehicles while train operations move through or service existing rail customers in North Pole.

There is also a need to improve ARRC’s operational efficiencies, preferably in a manner that would benefit not just ARRC, but also the City of North Pole by reducing transportation conflicts. The existing train operating speed in the corridor is limited to 20 miles per hour (mph), which increases train travel times and operating costs, and causes transportation conflicts.

The proposed project would allow an increase in operating speeds as much as three-fold, cutting travel time in this corridor from 24 minutes to as little as 8 minutes. The proposed project would also reduce transportation conflicts, as North Pole vehicle drivers would no longer need to wait for trains to pass before continuing to their destination.
PROPOSED ACTION AND ALTERNATIVES CONSIDERED

Build Alternatives Evaluated in this EA

Two build alternatives are analyzed in this EA: Alternatives A and C (Proposed Action). Aspects of the project common to both build alternatives are provided below. Descriptions of other key features of the two build alternatives are summarized in the following sections. A detailed analysis of alternatives is included in Appendix B.

- Realign the track outside of the downtown area of North Pole, on or near the Tanana River Flood Control Levee.
- Construct a new grade-separated crossing of the Richardson Highway (roadway overpass or underpass) approximately 2 miles west of the existing at-grade crossing at Milepost (MP) 9 of the highway, and remove the existing crossing (rails, panels, etc.).
- Remove rails and ties along the existing alignment that is no longer needed for railroad operating purposes (approximately MP G14.7 to G19.1 through North Pole), and convert some or all of the section from MP G12.0 to MP G14.7 to a rail spur.
- Provide continued access for FNSB and USACE to the Tanana River Flood Control Levee, which serves primarily as a flood control structure, for inspections, maintenance, and flood fighting activities.
- Address recreational access to the Flood Control Levee Trail (a multi-use motorized recreational trail located in the Levee corridor) and across the Levee to the Tanana River. Construct grade-separated crossings for trail users, whenever possible, and consolidate existing informal access trails to help ensure the safety of trail users.
- Construct a new access to the Flint Hills Refinery from the realigned track to the south, and additional support tracks and related facilities parallel to the proposed new alignment to provide necessary switching and storage of cars for the refinery. Close the existing access north of the refinery.
- At the east end of the project near Dyke Road, near MP G19, realign approximately 0.5 mile of Old Richardson Highway to the north to eliminate the existing public at-grade crossing. Realign the road onto the existing rail bed, and construct the rail embankment on top of the existing road.
- Acquire right-of-way (ROW) and address utility relocations as necessary.

Alternative A: Alignment on the Levee

Alternative A would realign the track on top of the existing Levee and would close ten at-grade crossings within the City of North Pole, including the existing crossing of the Richardson Highway. Three other crossings located along the spur track would have significantly reduced train traffic. The grade separation of the Richardson Highway would be with the rail crossing over the road, providing a vertical clearance of 18 feet. In addition, an at-grade temporary crossing of the Richardson Highway would be required if construction is phased. The temporary
crossing would be constructed with acceleration and deceleration lanes, and would be removed once construction of the grade-separated crossing is complete.

Because Alternative A would realign the railroad embankment directly on top of the Levee, the existing Flood Control Levee Trail would need to be relocated. A new trail corridor would be established on the landward side of the Levee, adjacent to and outside of the proposed ARRC ROW and the Golden Valley Electric Association (GVEA) line. The proposed trail corridor would consolidate trail crossings of the Levee to help ensure the safety of trail users.

*Alternative C (Proposed Action): Alignment Landward of the Levee*

Alternative C (Proposed Action) would realign the track on the landward side of the Tanana River Flood Control Levee and would close nine at-grade crossings within the City of North Pole, including the existing crossing of the Richardson Highway. Three other crossings located along the spur track would have significantly reduced train traffic. The grade-separated crossing of the Richardson Highway would be with the road crossing over the rail, with one of two options: either a bulb-tee roadway bridge or a structural plate arch bridge.

Alternative C (Proposed Action) would maintain access to the Tanana River Flood Control Levee, as well as the Flood Control Levee Trail. Crossings of the realigned track would be provided at key locations to ensure continued access for FNSB and USACE to the Levee (for inspections and maintenance), with grade-separated crossings whenever possible, to provide continued access to the recreational trail.

Where possible, the rail embankment would diverge from the Levee to provide additional separation between the rail and the Levee (up to about 250 feet of separation). The existing GVEA line would constrain the rail realignment and maintaining separation between the rail and the Levee would not be possible along the entire corridor. Relocating the GVEA line, at least in some locations, may be required. The GVEA line constraints and potential relocation requirements would be addressed in more detail during final design.

*No-Action Alternative*

Other than routine maintenance (e.g., replacement of rails, ties, and surfacing), there would be no changes in the existing Eielson Branch alignment through North Pole, between Alaska Railroad Corporation MP G12 (Richardson Highway MP 9) and the Chena River Floodway (Alaska Railroad MP G20). The track would continue to bisect downtown North Pole and all existing at-grade crossings would remain open, including the crossing of the Richardson Highway. A reduction in number of at-grade crossings and track realignment would not occur. If the alignment remains unchanged, the purpose and need would not be met, and the safety issues and traffic conflicts/delays currently experienced in the project area would continue.

*Summary of Environmental Consequences*

The following table summarizes the environmental consequences associated with the alternatives being considered. The environmental consequences of the alternatives are discussed in detail in Section 3.0.
## Comparison of Alternatives

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<th>Alternative C (Proposed Action)</th>
<th>No-Action</th>
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<td><strong>Physical Environment</strong></td>
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<td>Air Quality</td>
<td>Beneficial - by relieving congestion at existing at-grade crossings, there would be a reduction in emissions from idling vehicles at crossings.</td>
<td>Beneficial - same as Alternative A.</td>
<td>No Change - emissions from idling vehicles at crossings would continue.</td>
</tr>
<tr>
<td>Soils, Geology, and Seismic</td>
<td>Minor - additional fill may result in differential settlement, but Levee has already undergone settlement so differential settlement would be minimal. Geotechnical studies would be conducted during final design to address differential settlement, permafrost, and potential for seismic events.</td>
<td>Minor - similar to Alternative A; much of the fill would be placed on undeveloped areas that could take several years for settlement. Geotechnical studies would be conducted during final design.</td>
<td>No Change</td>
</tr>
<tr>
<td>Flood Hazards and Floodplain Management</td>
<td>Moderate - work would result in a major modification to the Levee. An operational agreement between FNSB, USACE, and ARRC would be needed to ensure continual access to the Levee corridor for inspections, maintenance, flood fighting, major repairs, and obtaining data. Less fill would be needed in the floodplain than with Alternative C.</td>
<td>Minor - minor modifications would occur in some areas, but they would not likely be considered a major modification. An operational agreement between FNSB, USACE, and ARRC would be needed. More fill would be needed in the floodplain than with Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Water Quality</td>
<td>Minor - potential impacts would be minimized using BMPs required by floodplain and stormwater permits.</td>
<td>Minor - same as Alternative A.</td>
<td>No Change</td>
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<td><strong>Biological Resources</strong></td>
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<td>Uplands</td>
<td>Minor loss of about 86 acres of uplands, which is a small percentage of the abundant similar upland habitat in the vicinity.</td>
<td>Minor - similar to Alternative A, except that about 63 acres of uplands would be disturbed.</td>
<td>No Change</td>
</tr>
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<td>Wetlands/Waters of the U.S.</td>
<td>Minor - about 12.5 acres would be filled, which is a small percentage of the abundant similar wetlands in the vicinity.</td>
<td>Minor - similar to Alternative A, except that about 20.0 acres would be filled.</td>
<td>No Change</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Minor - some habitat loss and displacement of individual animals would occur, but abundant similar habitat is available nearby (see vegetation and wetlands).</td>
<td>Minor - same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Fish and Essential Fish Habitat</td>
<td>NA</td>
<td>NA</td>
<td>No Change</td>
</tr>
<tr>
<td>Resource Area</td>
<td>Alternative A</td>
<td>Alternative C (Proposed Action)</td>
<td>No-Action</td>
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<tr>
<td><strong>Human Environment</strong></td>
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<td>Land Ownership and Land Use</td>
<td>Minor - ROW acquisition of business, residential, city, state, and federal lands would be required, and existing land use would change. Relocation of the rail line would be consistent with local land use plans. Net beneficial impact due to relocation of rail line from areas of residential and business uses with continued access to industrial areas.</td>
<td>Minor - same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Affected Parcels, Private Property Owners, and Acreage</td>
<td>Minor - 65 affected parcels (11 developed privately owned parcels) and 17 affected property owners. Requires acquisition of about 200 acres.</td>
<td>Minor - 65 affected parcels (10 developed privately owned parcels) and 17 affected property owners. Requires acquisition of about 177.3 acres.</td>
<td>No Change</td>
</tr>
<tr>
<td>Business and Residential Relocations(^1)</td>
<td>Potential for 4 residential relocations and 6 business relocations on 7 parcels.</td>
<td>Potential for 7 residential relocations and 7 business relocations on 9 parcels.</td>
<td>No Change</td>
</tr>
<tr>
<td>Socioeconomics</td>
<td>Beneficial – short-term benefit of increased employment and purchases of local goods and services during construction.</td>
<td>Beneficial – same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Safety</td>
<td>Beneficial – reduction in vehicle crossings in the City of North Pole, grade-separated crossing at the Richardson Highway, fewer petroleum tank rail cars traveling and/or stored in the City of North Pole, fewer delays to emergency vehicles.</td>
<td>Beneficial – same as Alternative A; may have less trespass issues due to the separation between railroad and recreational trail.</td>
<td>No Change – existing safety concerns would continue.</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>Beneficial – rail alignment would be relocated outside of North Pole proper to an area with far fewer noise sensitive receivers. Fewer trains and at-grade crossings, traveling at greater speeds, resulting in less noise and vibration. One residential property that was projected to have a “severe” noise impact will be acquired by the ARRC, and thus, the noise impact will be avoided.</td>
<td>Beneficial – similar to Alternative A, rail alignment would be relocated outside of North Pole proper to an area with far fewer noise sensitive receivers. There would be slightly higher noise levels for a few isolated residential areas, due to closer proximity to the rail alignment; however, no “severe” noise impacts would occur under this alternative.</td>
<td>No Change – railroad noise and vibrations would continue.</td>
</tr>
<tr>
<td>Utilities</td>
<td>Minor – the GVEA 138kV line may need to be raised, buried or relocated in 6 locations.</td>
<td>Minor – the GVEA 138kV line may need to be raised, buried, or relocated in 3 locations.</td>
<td>No Change</td>
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\(^1\) Some parcels have both a business and a residence. The number of relocations represents those that may qualify for relocation assistance.
<table>
<thead>
<tr>
<th>Resource Area</th>
<th>Alternative A</th>
<th>Alternative C (Proposed Action)</th>
<th>No-Action</th>
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<tr>
<td>Recreation and Section 4 (f)</td>
<td>Minor – Levee trail corridor would be relocated and trail crossings would be established to cross the tracks and allow access to the Tanana River; grade-separated crossings would be constructed in feasible areas. No Section 4(f) impacts (as the trail is not considered a Section 4(f) resource).</td>
<td>Minor – informal trails would be consolidated or eliminated and redirected to designated crossings to decrease the chance of trespassers. Grade-separated crossings, where feasible, would provide access to the Tanana River Levee Trail. No Section 4(f) impacts (as the trail is not considered a Section 4(f) resource).</td>
<td>No Change</td>
</tr>
<tr>
<td>Contaminated Sites</td>
<td>Minor – 4 known or potentially contaminated sites are near the build alternatives, and 9 other sites are near the existing alignment. Further investigation of some sites may be needed prior to construction.</td>
<td>Minor – same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Richardson Highway Crossing</td>
<td>Beneficial – existing at-grade crossing would be eliminated, and replaced with a grade-separated crossing (rail over road), and a temporary at-grade crossing would be needed if construction is phased.</td>
<td>Beneficial – same, except that the grade-separated crossing would be a road overpass (road over rail).</td>
<td>No Change</td>
</tr>
<tr>
<td>Other Railroad Crossings</td>
<td>Beneficial – 10 existing at-grade crossings removed and 3 would see reduced train traffic.</td>
<td>Beneficial – 9 existing at-grade crossings removed and 3 would see reduced train traffic.</td>
<td>No Change</td>
</tr>
<tr>
<td>Transportation Systems/Facilities</td>
<td>Beneficial – fewer at-grade crossings in the community resulting in better traffic flow and fewer conflicts.</td>
<td>Beneficial – same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Operational Efficiency</td>
<td>Beneficial – increased track speeds up to 60 mph and better access to Flint Hills would improve ARRC operating efficiency.</td>
<td>Beneficial – same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Existing/Potential Customers</td>
<td>Beneficial – relocated access and new siding tracks are proposed to serve existing customer Flint Hills Refinery.</td>
<td>Beneficial – similar to Alternative A; the grade difference into the Flint Hills Refinery would be about half that of Alternative A which could require less fill.</td>
<td>No Change</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL COMMITMENTS AND MITIGATION

Environmental commitments and mitigation measures that would be implemented are as follows:

**Air Quality.** Dust would be controlled as necessary during construction by watering or using other dust suppression measures. Exposed earthwork would be stabilized as soon as practicable to reduce windblown particulates in the area.

**Water Quality.** A Stormwater Pollution Prevention Plan (SWPPP) would be prepared to obtain coverage under the Alaska Pollutant Discharge Elimination System (APDES) General Permit for Discharges from Large and Small Construction Activities. Best Management Practices (BMPs), which may include the use of temporary erosion control measures such as straw waddles, silt fencing, etc., would be identified in the SWPPP and implemented to minimize erosion and sedimentation. ARRC would use contaminant-free embankment and surface materials in construction, and would monitor construction activities as necessary to reduce temporary impacts. Standard spill-prevention measures would be implemented during construction. Spill clean-up equipment (e.g., oil-absorbent pads) would be available onsite during construction. Disturbed areas would be reseeded with non-invasive species to stabilize soils and minimize erosion. Should groundwater be encountered during excavation associated with construction activities, dewatering would be conducted in compliance with either the APDES Construction General Permit or the State of Alaska Department of Environmental Conservation (ADEC) Wastewater Disposal Excavation Dewatering General Permit and associated BMPs to minimize impacts to groundwater quality.

**Hydrology and Flood Zones.** Project design would comply with FNSB floodplain management regulations and permit conditions. The project would include drainage structures (cross culverts) in the Zone A special flood hazard areas to maintain hydrologic connectivity within the floodplains. A detailed Hydrologic and Hydraulic (H&H) analysis would be performed during final design and permitting to confirm that placement of fill within the Zone A special flood hazard areas would not pose a significant risk through raising the base flood elevations and/or displacing floodwaters during a 100-year event, and that natural and beneficial floodplain values would be maintained. If flood risks are identified in the H&H analysis, mitigation measures would be developed and implemented to offset the impacts through construction of additional floodwater storage areas.

ARRC would coordinate with the USACE and FNSB to obtain the necessary approvals for modification of the Levee and ensure that the FNSB and USACE have continual access for inspection, maintenance, flood fighting, major repairs, and obtaining data. A plan would be developed by and between the FNSB, USACE, and ARRC to address the entire scope of the proposed project that impacts the Federal Project (e.g., changes in access, property ownership, maintenance responsibility, etc.).

**Soils and Geology.** The project would be designed to take into account the region’s potential for earthquake activity to mitigate potential damage to the new infrastructure. Site specific geotechnical measures would be implemented in areas subject to permafrost thaw and settlements. Strategies that may be implemented to mitigate thaw settlement include removing surficial silty/organic soils and replacing with clean granular fill, passively refrigerating the sub-grade to maintain the integrity of the permafrost and reduce the potential for thaw-settlement, and/or prethawing the silty sub-grade soils by stripping the organics and allowing the sub-grade
to thaw naturally. Ground disturbance would be limited to only those areas necessary for construction activities, and appropriate erosion control measures would be implemented.

**Wetlands.** ARRC would clearly identify vegetation clearing and construction limits (boundaries) by staking, flagging, and/or fencing to prevent physical disturbance beyond the project limits authorized by the USACE Section 404 Permit. ARRC would comply with the provisions of the Section 404 Permit, including compensatory mitigation for unavoidable impacts to wetlands. Temporary impacts to wetlands during construction would be minimized, and staging activities would occur in non-wetland locations to the extent possible. Native vegetation would be reestablished in areas that are temporarily disturbed. The project would include drainage structures, as needed, to maintain existing drainage patterns and/or hydrologic connectivity.

**Wildlife.** To the extent possible, clearing of vegetation would occur before or after the typical bird nesting season, following United States Fish and Wildlife Service guidance on time periods for avoiding vegetation clearing in Interior Alaska. This would also mitigate potential impacts to moose and many other mammals as it encompasses the most sensitive time when young are born.

**Land Use/Property Acquisition.** All land acquisition and relocation of residents and businesses would be completed in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Act and the Alaska Relocation Assistance and Real Property Acquisition Practices adopted under state statute (Alaska Statute AS 34.60). ARRC would work with affected property owners to appropriately address project-related construction activity issues. To the extent practicable, ARRC would ensure that obstructions to business entrances and exits are minimized during construction activities. Once the funding and schedule for project construction are better defined, ARRC and ADOT&PF real estate representatives will work together to develop a process for acquiring the ROW necessary for the Richardson Highway crossing and overpass concurrently with acquisition of the ROW for the realignment, and to streamline the conveyance process.

**Utilities.** ARRC would coordinate with appropriate utility companies during design and construction so that utilities are protected during project-related construction activities. ARRC would minimize disruptions to utilities by scheduling project-related construction work and outages to low-use periods to the extent possible. ARRC would notify residents and other utility customers in advance of project-related construction activities requiring temporary service interruption.

**Transportation.** The final design of the Richardson Highway crossings (temporary at-grade and grade-separated crossings) and the frontage road would be coordinated with ADOT&PF. Acceleration/deceleration lanes would be 12-feet wide, and the vertical clearance for the rail-over-road grade-separated crossing (Alternative A) would be 18-feet. ARRC would consider establishing a diagnostic team to review the relocated Richardson Highway crossing in accordance with its Policy on Railroad/Highway Crossings. A traffic control plan would be prepared prior to initiating construction to avoid and minimize road closures and lane restrictions to the extent practical. Road users would be notified of temporary road closures and other construction-related activities, so alternate routes could be planned. Proper signage and notice of lane closures would be provided. Signs providing the name, address, and telephone number of a contact person would be displayed on-site to assist the public in obtaining immediate responses to questions and concerns about project activities. ARRC would coordinate with the FNSB and
USACE to ensure adequate access for maintenance of the Levee is provided. ARRC would also coordinate with ADOT&PF regarding the levee access from the Richardson Highway.

**Noise and Vibration.** ARRC would work with its construction contractor(s) to minimize, to the extent practicable, construction-related noise disturbances near residential areas. Construction and maintenance vehicles shall be in good working order with properly functioning mufflers.

**Archaeological and Historic Sites.** Should construction activities unearth any archaeological or cultural resources, construction would be halted in the immediate area, until the State Historic Preservation Officer is notified, the significance of the find is evaluated, and an appropriate course of action is identified.

**Recreation.** Grade-separated crossings would be used to the extent possible to provide access for recreational users over or under the new railroad embankment. During construction, some access restrictions to the existing trail and the Levee area could occur for safety purposes. Appropriate notification would be made to the FNSB and users, and detours would be well marked. Signs providing the name, address, and telephone number of a contact person would be displayed on-site to assist recreationalists in obtaining immediate responses to questions and concerns about project activities.

**Contamination, Contaminated Sites, and Unexploded Ordinance.** Further investigation into possible contamination and presence of Unexploded Ordinance (UXO) may be conducted prior to property acquisition. Construction through the USACE UXO area would require coordination with the United States Army, and potentially with the United States Environmental Protection Agency, and ADEC. Short-term hazardous materials construction impacts (e.g., fuel spillage from equipment) would be limited through ARRC contracting requirements, management plans, and BMPs that would include implementation spill-prevention measures and hazardous materials handling and fuel management practices. Spill clean-up equipment (e.g., oil-absorbent pads) would be available onsite during construction. Any contamination encountered during construction would be addressed in accordance with applicable state and federal regulations.
1.0 PURPOSE OF AND NEED FOR PROPOSED PROJECT

1.1 Introduction

The Alaska Railroad Corporation (ARRC) proposes to reduce the number of crossings on a portion of its Eielson Branch through North Pole, Alaska. The proposed project is referred to as the North Pole Road/Rail Crossing Reduction Project. The study area, located in the Fairbanks North Star Borough (FNSB), is depicted on Figure 1-1. As discussed in Section 1.3, this project involves one segment of a realignment project previously considered (the Eielson Branch Realignment) and is also Phase 1 of the much larger Fairbanks Area Rail Line Realignment (FARLR) project.

This Environmental Assessment (EA) describes and analyzes potential environmental impacts associated with the Proposed Action and reasonable alternatives, including the No-Action Alternative, in accordance with the National Environmental Policy Act (NEPA). The Federal Railroad Administration (FRA) is the lead federal agency. In addition, the Federal Highway Administration (FHWA), the United States Army Corps of Engineers (USACE), and FNSB are cooperating agencies in the preparation of this EA, and the City of North Pole is a participating agency.

1.2 Purpose and Need

The purpose of the project is to enhance public safety, reduce transportation conflicts, and improve ARRC’s operating efficiency while ensuring continued rail access to existing and potential future ARRC customers and minimizing impacts to businesses and property owners. The tracks between ARRC Milepost (MP) G12 (Richardson Highway MP 9) and the Chena River Floodway (ARRC MP G20) would be realigned on or near the existing Tanana River Flood Control Levee to reduce the number of at-grade crossings, including removal of the existing four-lane road/rail at-grade crossing of the Richardson Highway.

There is a need to improve vehicular and pedestrian safety at the numerous at-grade crossings in the project corridor. The existing corridor contains 14 at-grade road crossings between ARRC MPs G12 and G20, including a crossing of the Richardson Highway at MP 12 (also known as the Peridot Crossing, due to its proximity to Peridot Street) (Figure 1-2). A reduction in the number of the heavily used at-grade crossings would decrease inherent safety concerns associated with crossings, including the potential for train and vehicular/pedestrian traffic accidents.

Safety would also be enhanced by reducing the potential for delays to emergency response vehicles while train operations move through or service existing rail customers in North Pole. The existing track passes between two schools; the North Pole High and Middle Schools that are accessible from the Old Richardson Highway. Public activity near the schools and frequenting of businesses in North Pole present increased risk each day, as students and the general public use the existing at-grade crossings.

There is also a need to improve ARRC’s operational efficiencies, preferably in a manner that would benefit not just ARRC, but also the City of North Pole by reducing transportation conflicts. The existing train operating speed in the corridor is limited to 20 miles per hour (mph), which increases train travel times and operating costs and causes transportation conflicts. Existing track in North Pole is limited and trains are broken into multiple pieces to serve the
Flint Hills Refinery, moving across public crossings many times during loading and unloading. As a result, vehicular and pedestrian traffic is inconvenienced.

The proposed project would enhance safety by reducing the number of at-grade crossings in downtown North Pole and improve ARRC’s operating efficiency, allowing ARRC to provide better service to its customers and reduce impacts in North Pole. The project would allow an increase in operating speeds as much as three-fold, cutting travel time in this corridor from 24 minutes to as little as 8 minutes. The proposed project would also reduce transportation conflicts, as North Pole vehicle drivers would no longer need to wait for trains to pass before continuing to their destination.

1.3 Background Information

ARRC has studied the feasibility of realigning the Eielson Branch around the more urbanized areas of Fairbanks and North Pole since the late 1990s, with reports issued in 2001 and 2002. In 1985, the Fairbanks Metropolitan Area Transportation System (FMATS), a public body composed of the State of Alaska Department of Transportation and Public Facilities (ADOT&PF) and local government, completed a study that recommended the realignment of the Railroad to the Tanana River Flood Control Levee. In addition, FNSB created the Rail 2100 Task Force in 2002 and commissioned another study that was issued in 2004. These studies are summarized below.

- **Fairbanks Bypass Realignment Reconnaissance (2001).** This report examined one rail realignment alternative of the main and branch line through the City of Fairbanks, Fort Wainwright, and the City of North Pole to the south and east along the Tanana River Flood Control Levee (Thomas Engineering, 2001). It provided a preliminary analysis of right-of-way (ROW), utility, and environmental issues, costs, and other considerations.

- **Fairbanks to North Pole Realignment Project Phasing Report (2002).** This study recommended breaking the realignment into manageable, fundable phases so the communities and ARRC could begin realizing benefits at an earlier date (Thomas Engineering, 2002). Two phasing options were evaluated, and under each option, the eastern portion of the project in North Pole would be constructed first.

- **Rail Realignment and Extension Planning Report (2004).** In 2002, the FNSB created the Rail 2100 Task Force and commissioned a comprehensive review of existing conditions and development of a long-term plan for future growth within and outside of the FNSB (FNSB Rail, 2100; Task Force, 2004). The final report provided recommendations for relocation or enhancement of railroad corridors and facilities in and around Fairbanks, but it was never adopted by the FNSB. The recommendation relevant to the proposed project involved relocation of a portion of the Eielson Branch from its present location between 3-Mile Gate (MP G7.5) and the Flint Hills Refinery in North Pole (MP G16.5) to the Tanana River Flood Control Levee.

In 2005, ARRC proposed the Eielson Branch Realignment Project, which would have realigned approximately 19 miles of track from the Fairbanks Depot through Fort Wainwright and North Pole. As a result of public meetings and ongoing consultations with community leaders during preparation of an EA for that project, it became apparent that several aspects of the project as
originally envisioned would be better addressed in a larger study, initially identified as the Fairbanks–North Pole Realignment, and now referred to as the FARLR.

ARRC and FNSB signed a Memorandum of Understanding in 2007 that identified the long-term desire of both parties – to optimize the alignment of the railroad within the Fairbanks to North Pole area to improve safety, consumer response, and minimize transportation conflicts within the adjacent communities. The Memorandum of Understanding identified and described the three phases of that effort:

- **Phase 1**: Richardson Highway MP 9 to North Pole
- **Phase 2**: Richardson Highway MP 3 to Richardson Highway MP 9
- **Phase 3**: West of Phase 2 past the Chena River

The 2007 Memorandum of Understanding formalized an agreement between the parties that Phase 1, now referred to as the North Pole Road/Rail Crossing Reduction Project, is the first priority since this phase is the least complex from both a financial and engineering point of view, has independent utility, and would provide immediate safety benefits. In 2010, funding became available to conduct preliminary engineering and preparation of this EA for the North Pole Road/Rail Crossing Reduction Project. Funding has not been secured for construction of Phase 1 or for preliminary engineering and environmental analyses for Phases 2 and 3. However, efforts by ARRC and the FNSB to identify funding sources and seek funding are ongoing.

### 1.4 Independent Utility of the North Pole Track Realignment

The FRA determined that the improvements proposed within North Pole have independent utility and immediate need and would provide substantial benefits regardless of the outcome of the larger FARLR. Therefore, this EA addresses only Phase 1 of the FARLR – the North Pole Road/Rail Crossing Reduction Project. The proposed project would enhance safety in downtown North Pole and improve ARRC’s operational efficiency by increasing train travel times and providing the capacity to store and build fuel car trains in North Pole, thereby reducing traffic conflicts at public crossings. The proposed project would not preclude implementation of any alternatives that may be considered for subsequent phases of the FARLR, nor would it render any alternatives infeasible.

### 1.5 National Environmental Policy Act Process

Under NEPA, the FRA must determine if the proposed project would have significant impacts on the physical, biological, and human environment in the North Pole area. NEPA is a national mandate for protection of the environment. It requires consideration of reasonable alternatives that minimize adverse impacts to the human and natural environment while meeting the purpose and need of the project, and it also provides for public disclosure of the environmental impacts. The NEPA process enables public officials to make decisions based on an objective understanding of environmental consequences, and to take actions that protect, restore, and enhance the environment. It also provides the opportunity for public comment.

Agency and public scoping, the first step in the NEPA process, was initially conducted in 2005 as part of the Eielson Branch Realignment Project. Agency and public scoping specific to the currently proposed North Pole Road/Rail Crossing Reduction Project was conducted in January 2011 (refer to Scoping Summary Report in Appendix A). There was general support for
realigning the railroad out of the City of North Pole, reducing the number of at-grade crossings, and a separated-grade crossing of the Richardson Highway. The key issues and concerns identified during the scoping process are as follows:

- **Recreation**: Consider the Flood Control Levee Trail, which will eventually be part of the proposed 100-Mile Loop Trail, in project planning. Maintain access across the Levee to the Tanana River to minimize impacts to current uses and recreation activities, including fishing and hunting.

- **Noise**: Consider noise impacts on homes located along the Old Richardson Highway at 10-Mile, 11-Mile, and 12-Mile Villages.

- **Track Removal and Property Issues**: Consider removing the tracks north of the Richardson Highway through downtown North Pole, which would allow for access and property development. Allow for direct access to the Old Richardson Highway. Allow property owners to repossess what was taken when the Eielson Branch was first constructed during World War II.

- **Fish and Wildlife**: Consider the potential for alteration of moose habitat and increased moose-train collisions along the realignment, particularly if the track speed limit is significantly increased. With Alternative D, or some other riverward alternative, there would be a higher risk of the project affecting or interacting with migratory or daily movements of wildlife along the floodplain and riparian corridor of the Tanana River. A number of historic sloughs and channels in the project area were altered during the construction of the Moose Creek Dam Flood Control Project and associated Tanana River Flood Control Levee. Several seepage channels were also constructed that connect to the cataloged waters of the Chena River.

- **Land Ownership and Property Acquisition**: Identify the area required to accommodate the rail realignment, the physical features (i.e., Levee, trail, transmission line, etc.), and land ownership within the area. Discuss impacts to landowners in the environmental document. Develop accurate ownership maps so that property acquisition can be considered during project planning. Identify how the ARRC/FRA intends to acquire the land necessary for rail realignment.

- **Tanana River Levee and Flood Control**: Concern regarding construction of the railroad on or near the Tanana River Levee, as the Levee was not designed to support live train loads, nor has it been analyzed by FNSB or USACE. Review recent analysis conducted for the Federal Emergency Management Agency (FEMA) re-certification process for the Levee. Similar information may be necessary to complete a structural analysis of routing the railroad on top of the Levee. FNSB needs access to the top, sides, and toe of the Levee embankment, the drainage blanket on the landward side of the Levee, and the first 15 feet of silt blanket on the riverward side of the Levee, to properly inspect and maintain the structure. The access points proposed by ARRC may or may not be suitable for all required Levee operations, and must be reviewed by FNSB Public Works in more detail as the final project alternative is designed. The Tanana River Levee bisects a portion of the Department of the Army-owned Dyke Range Impact Area, which has not been used for training in over 10 years, but is still classified as an active Army military training range.
Any work in this area will require a complete survey and investigation by certified unexploded ordinance (UXO) technicians.

- **Authorizations and NEPA Analysis:** If the Proposed Action were to result in a real estate activity requiring approval by United States Army Garrison, Fort Wainwright, Alaska (USAG FWA), the Army would be required to conduct its own NEPA review. In order to facilitate this review, USAG FWA would prefer to adopt the ARRC/FRA NEPA documentation associated with this action.

If significant impacts are identified in the EA, a more detailed Environmental Impact Statement (EIS) will be prepared. If FRA determines that no significant adverse impacts would occur, it will issue a Finding of No Significant Impact (FONSI). Any public comments that need clarification or inclusion will be addressed in the FONSI. The cooperating agencies would also issue their own FONSI. This finding would allow ARRC to proceed with the Proposed Action.

### 1.6 Project Authorizations

Below is a list of permits and consultations that may be pertinent to the project.

- **Clean Water Act, Section 404, 33 United States Code (U.S.C.) 1344** – permit administered by the USACE for discharge of fill material in Waters of the United States (U.S.), including wetlands.
- **Clean Water Act, Section 402** – permit administered by the State of Alaska Department of Environmental Conservation (ADEC) for storm water discharges from construction activities under the Alaska Pollutant Discharge Elimination System (APDES).
- **Clean Water Act, Section 401, 33 U.S.C. 1344; 18 Alaska Administrative Code 15** – Water Quality Certification administered by the ADEC.
- **Alaska Statute (AS) 46.03** – Wastewater Disposal General Permit – Excavation Dewatering – permit administered by the ADEC for dewatering activities associated with construction.
- **National Historic Preservation Act, Section 106, 16 U.S.C. 470 et seq.; Alaska Historic Preservation Act, AS 41.35.010-240** – consultation with the State of Alaska Department of Natural Resources (ADNR), Office of History and Archaeology, State Historic Preservation Officer (SHPO).
- **Easement or ROW acquisition and permits (e.g., temporary permit for construction activities) from the FNSB and Bureau of Land Management (BLM).**
- **Chapter 15.04 Floodplain Management** – permit administered by the FNSB for fill within special flood hazard areas or excavation within 250 feet of the centerline of the Tanana Levee structure.
- **USACE approval for modification of the Tanana River Levee, a Federal Project as defined by Code of Federal Regulations 33 CFR 208.10 and/or 33 USC 408.**
- **ADOT&PF utility permit and/or easement for the relocated crossing of the Richardson Highway.**
(Intentionally left blank)
2.0 PROPOSED ACTION AND ALTERNATIVES CONSIDERED

Two build alternatives and the No-Action Alternative are evaluated in the following sections. A description of alternatives considered, but eliminated from further study, is included in Section 2.3. A detailed Alternatives Analysis Report (TranSystems, 2011) is included in Appendix B.

2.1 Build Alternatives Evaluated in this Environmental Assessment

Based on the North Pole Road/Rail Crossing Reduction Project Alternatives Analysis Report (TranSystems, 2011) (Appendix B), two build alternatives to reduce the number of crossings will undergo full analysis and comparison of environmental impacts: Alternatives A and C (Proposed Action) (Figure 2-1). Aspects of the project common to both build alternatives are provided below. Descriptions of other key features of the two build alternatives are summarized in the following sections.

- Realign the track outside of the downtown area of North Pole, on or near the Tanana River Flood Control Levee.
- Construct a new grade-separated crossing of the Richardson Highway (roadway overpass or underpass) approximately 2 miles west of the existing at-grade crossing at MP 9 of the highway and remove the existing at-grade crossing near Peridot Street.
- Remove rails and ties along the existing alignment that is no longer needed for railroad operating purposes (approximately MP G14.7 to G19.1 through North Pole), and convert some or all of the section from MP G12.0 to MP G14.7 to a rail spur.
- Provide continued access for FNSB and USACE to the Tanana River Flood Control Levee, which serves primarily as a flood control structure, for inspections, maintenance, and flood fighting activities.
- Address recreational access to the Flood Control Levee Trail (a multi-use motorized recreational trail located in the Levee corridor) and across the Levee to the Tanana River. Construct grade-separated crossings for trail users, whenever possible, and consolidate existing informal access trails to help ensure the safety of trail users.
- Construct a new access to the Flint Hills Refinery from the realigned track to the south, and additional support tracks and related facilities parallel to the proposed new alignment to provide necessary switching and storage of cars for the refinery. Close the existing access north of the refinery.
- At the east end of the project near Dyke Road, near MP G19, realign approximately 0.5 mile of Old Richardson Highway to the north to eliminate the existing public at-grade crossing. Realign the road onto the existing rail bed, and construct the rail embankment on top of the existing road (Figure 2-2).
- Acquire ROW and address utility relocations as necessary.
2.1.1 Alternative A: Alignment on the Levee

Alternative A would realign the track on top of the existing Levee (Figure 2-1 and Exhibit 1). It would close ten at-grade crossings within the City of North Pole, including the existing crossing of the Richardson Highway. Three other crossings located along the spur track would have significantly reduced train traffic.

* See Figure 2-3 for additional cross sections.

Exhibit 1: Track on Levee (Alternative A)

The grade separation of the Richardson Highway would be with the rail crossing over the road (Exhibit 2). The bridge would have a vertical clearance of 18 feet to facilitate oversize loads traveling through the corridor. Although construction of that crossing at the time of initial construction is preferred, an at-grade temporary crossing of the Richardson Highway may be required if construction must be phased due to funding constraints. The temporary crossing would be constructed with acceleration and deceleration lanes. The grade-separated crossing must be constructed without interrupting service on the ARRC main line, which would require maintaining sufficient space between the two crossing locations such that construction workers and equipment are able to maintain a safe distance from the temporary crossing during construction of the grade-separated crossing. Impacts to Richardson Highway users would also be minimized. The temporary crossing would be removed once the grade-separated crossing is constructed.

Exhibit 2: Rail Over Road at Richardson Highway Crossing (Alternative A)

Under Alternative A, both the temporary at-grade crossing and proposed rail overpass at Richardson Highway would block existing access to the frontage road southeast of the crossing. The project proposes to leave most of the frontage road in place and either terminate the road
with a cul-de-sac or relocate the driveway to the frontage road eastward along the Richardson Highway. Either option would allow continued access to all developed properties remaining along the frontage road. Properties where access would not be feasible are currently undeveloped and would need to be acquired by ARRC in order to build the proposed rail overpass. Final design of the frontage road would need to be coordinated with ADOT&PF.

Due to the large embankment needed for the approach to the new Richardson Highway crossing at MP 9, neither an underpass nor an overcrossing is possible at the Green Construction or the Rentals Street crossings under Alternative A. Therefore, the existing access to Green Construction would be relocated and the at-grade crossing for Rentals Street would need a grade raise, as shown on Figure 2-4.

The rail alignment would follow the alignment of the Levee except where precluded by vertical grade and track curvature requirements. The Levee varies in height from 5 to 15 feet, and has a top width of 9 to 12 feet. Where required, it would be increased in height and widened, mainly on the landward side, to provide a suitable foundation for the railroad. The proposed roadbed would be constructed with sufficient width to allow a maintenance shoulder for use by both ARRC and FNSB. Because the proposed track location would impact the FNSB’s existing day-to-day Levee access road/stability berm, a new dedicated access road/stability berm would be provided near the base of the Levee. FNSB and the USACE have confirmed that locating the rail on top of the Levee is not infeasible, but it would likely be considered a major modification under the USACE Levee Safety Program. Major modifications require an in depth engineering analysis of the changes to the Levee and approval of the modification by USACE headquarters prior to any construction activities. Any significant changes to the Levee system would also require an engineering reevaluation of the Levee certification for the National Flood Insurance Program.

Because Alternative A would realign the railroad embankment directly on top of the Levee, the existing Flood Control Levee Trail would need to be relocated. A new trail corridor would be established on the landward side of the Levee, adjacent to and outside of the proposed ARRC ROW and the Golden Valley Electric Association (GVEA) line. The proposed trail corridor would consolidate trail crossings of the Levee to help ensure the safety of trail users.
2.1.2 Alternative C (Proposed Action): Alignment Landward of the Levee

Alternative C (Proposed Action) would realign the track on the landward side of the Tanana River Flood Control Levee (Figure 2-1 and Exhibit 3). It would close nine at-grade crossings within the City of North Pole, including the existing crossing of the Richardson Highway. Three other crossings located along the spur track would have significantly reduced train traffic. The grade-separated crossing of the Richardson Highway would be with the road crossing over the rail, with one of two options: a bulb-tee roadway bridge or a structural plate arch bridge. Alternative C (Proposed Action) would not impact the Rentals Street crossing, and would not require relocation of the Green Construction access road. It could require construction of a temporary at-grade crossing of the Richardson Highway.

* See Figure 2-5 for additional cross sections.

Exhibit 3: Track Landward of Levee (Alternative C-Proposed Action)

Exhibit 4: Road Over Rail at Richardson Highway Crossing (Alternative C-Proposed Action)

Alternative C (Proposed Action) would maintain access to the Tanana River Flood Control Levee, as well as the Flood Control Levee Trail. Crossings of the realigned track would be provided at key locations to ensure continued access for FNSB and USACE to the Levee (for inspections and maintenance), with grade-separated crossings whenever possible to provide continued access to the recreational trail.

Although construction of the grade-separated crossing at the time of initial construction is preferred, a temporary at-grade crossing of the Richardson Highway may be required if construction must be phased due to funding constraints. Like Alternative A, this crossing would
be constructed with acceleration and deceleration lanes. However, the track would not be removed once the road-over-rail grade-separated crossing is constructed.

Along most of the alignment, the rail embankment would diverge from the Levee to provide additional separation between the rail and the Levee (up to about 250 feet of separation). The exception is the east end of the alignment where the Levee, roadway and existing rail already share the embankment. Typical cross sections showing the rail embankment, Levee, and GVEA power line are provided in Figure 2-5. The existing GVEA power line would constrain the rail realignment and maintaining separation between the rail and the Levee would not be possible along the entire corridor. Relocating the GVEA line, at least in some locations, may be required. The GVEA line constraints and potential relocation requirements would be addressed in more detail during final design.

2.1.3 Richardson Highway Crossing Alternatives

The Richardson Highway is part of the Eisenhower Interstate System within the National Highway System. The ADOT&PF had, at one time, identified possible funding for the replacement of the existing at-grade crossing near Peridot Street with a grade-separated crossing, which would significantly increase the safety and efficiency of both road and rail. This project was removed from the transportation plan once the North Pole rail realignment was proposed, as the location of the crossing could change. A grade-separated crossing of the Richardson Highway would be constructed as part of the proposed project, and the existing crossing would be removed once the relocated crossing is operational.

Crossing Type – A road-over-rail grade-separated crossing is considered in conjunction with Alternative C (Proposed Action), and a rail-over-road grade-separated crossing is considered in conjunction with Alternative A. For Alternative A, the availability of funding may dictate phased construction, which would likely require construction of a temporary at-grade crossing if full project funding is delayed. The temporary crossing would be removed once the grade-separated crossing is constructed. The Richardson Highway crossing alternatives are shown in Exhibits 2 and 4. Under Alternative C (Proposed Action), ARRC would construct either a bulb-tee roadway bridge (as shown in Exhibit 4) or a structural plate arch bridge (not shown), and a temporary at-grade crossing may also be required.

Crossing Location – The location of the proposed Richardson Highway crossing is at MP 9, within the boundary identified in the 2007 Memorandum of Understanding between ARRC and FNSB for this phase of the FARLR. Two areas further west were reevaluated to confirm that they did not provide a more suitable location for the crossing: (1) the Rentals Street area, and (2) an area further west but east of the intersection with the Old Richardson Highway. These areas have constraints and disadvantages as compared to a crossing at MP 9, and provide no advantage over the proposed crossing location. For example, costs would be increased due to the need to acquire more ROW and maintain more track, as additional portions of the existing track would need to be maintained along with the new track. Also, the distance between the main line, Richardson Highway, and the Levee significantly narrows west of the proposed highway MP 9 crossing, so the Levee would need to be moved into the floodplain toward the river to accommodate the railroad embankment and necessary ROW. Other disadvantages are
associated with the skew angle of the highway crossing and property impacts. Therefore, these other crossing locations were not advanced for further consideration. A more detailed discussion explaining the constraints and limitations of these other crossing locations can be found in the Alternatives Analysis Report for this project (TranSystems, 2011) (Appendix B).

2.2 No-Action Alternative

Other than routine maintenance (e.g., replacement of rails, ties, and surfacing), there would be no changes in the existing Eielson Branch alignment through North Pole, between ARRC MP G12 (Richardson Highway MP 9) and the Chena River Floodway (ARRC MP G20). The track would continue to bisect downtown North Pole and all existing at-grade crossings would remain open, including the crossing of the Richardson Highway. A reduction in number of at-grade crossings and track realignment would not occur. If the alignment remains unchanged, the purpose and need would not be met, and the safety issues and traffic conflicts/delays currently experienced in the project area would continue.

2.3 Other Alternatives Considered but Eliminated From Further Study

Several other alternatives were considered in the alternatives analysis, but have been eliminated from further consideration because they did not meet the purpose and need or they had relatively more adverse environmental impacts than alternatives carried through the EA. Brief descriptions of the alignment alternatives and the reasons for their elimination from further study are provided below.

Alignment Alternative B: Alignment inside the Levee

Alignment Alternative B would realign the track on the landward side of the Levee, on top of the existing Levee maintenance road/stability berm. The grade separation of the Richardson Highway would be with the rail crossing over the road. The roadbed would be wide enough to accommodate access and maintenance for both the FNSB and ARRC without a shared access road. Both parties require daily access, and believe that a shared road would result in conflicts and hinder their ability to properly maintain and operate their respective infrastructure.

Exhibit 5: Track Inside Levee (Alternative B)

The FNSB has indicated that it does not want the top of the Levee to be used for trail purposes. Further, a trail on top of the Levee would be too close to the track, compromising safety. The Flood Control Levee Trail would be relocated outside of the proposed ARRC ROW and the GVEA line, similar to Alternative A, with grade-separated crossings provided for recreational
users at key locations. However, the elevation of the track and proximity to the Levee make separated grade crossings for recreational users considerably more difficult to implement than under Alternative A or C (too low for a recreational user culvert/underpass, and too high for an overpass).

Relocating the GVEA line in some locations would be required, but it would not be feasible in the areas near the Bradley Sky Ranch Airport due to the height of the poles and airstrip restrictions. Alternative B is similar to Alternative A, yet provides no advantages and several disadvantages relative to Alternative A. Therefore, it was eliminated from further consideration in the EA.

Alignment Alternative C Option 2: Alignment on the Levee – Levee Relocation

Alternative C Option 2 is similar to Alternative C, except that a section of the Tanana River Levee would be relocated to the southwest (riverward) to reduce impacts to developed private properties at the west end of the project in the vicinity of the new Richardson Highway crossing. The rail embankment would be constructed where the levee is now located, and like Alternative C, there would be a road-over-rail crossing of the Richardson Highway. The existing Tanana River Levee would be relocated riverward to avoid sharing access for maintenance, inspection/monitoring, and flood fighting activities between ARRC and FNSB. As compared to Alternative C, Alternative C Option 2 would reduce private property acquisitions, but it would have greater environmental impacts relative to flood hazards and floodplain management, wetlands, EFH, and uplands. Alternative C Option 2 would also have substantially higher costs than Alternative C. A more detailed discussion explaining the constraints and limitations of this Alternative can be found in the Alternatives Analysis Report, Addendum 2 (TranSystems, 2011) (Appendix B).

Alignment Alternative D: Alignment on the Levee – Riverward Side

Alternative D is similar to Alternative A, except that it would be offset several feet from the centerline of the Levee toward the Tanana River. Like Alternative A, it would be considered a major modification requiring re-certification of the Levee, but it would also have a significant disadvantage in that required fill necessary to support the track roadbed would be placed entirely within the mapped 100-year floodplain. The key positive features of Alternative D were incorporated into Alternative A, through the refinement of the design, and therefore, Alternative D was eliminated from further consideration.

Alignment Alternative E: Improvements in the Existing Alignment

This alternative evaluates three options for improvements within the existing alignment through the City of North Pole to provide safer crossings and increased track speed.

- Option E-1 (Crossing Consolidation) would upgrade the track infrastructure, consolidate crossings, and reduce curves where necessary in order to increase track speeds and reduce traffic delays at crossings. At-grade crossings would be difficult to consolidate because much of the surrounding roads and properties are developed, so significant impacts to property and roadway infrastructure would result (see Figure 2-6).
- Option E-2 (Rail Over Road) would grade-separate the existing rail alignment over seven streets within North Pole (Cross Way, 5th Avenue, N.P.H.S. Boulevard, Laurance Road, VFW Road, and Dyke Road). This option would add approximately $18 million in project costs, representing an approximate 30% increase to the estimated project cost.

- Option E-3 (Overpass Construction) would improve the existing line and replace seven existing at-grade crossings with road over rail grade-separated crossings. The footprint of the required embankments needed to achieve the minimum vertical clearance would cause significant commercial and residential property impacts within the City of North Pole and the central business district (about 83 parcels and 30 residential or commercial structures). For Option E-3, a sample intersection showing the potential impacts of a grade separation at N.P.H.S Boulevard is included as Figure 2-7. The cost for grade-separating these seven crossings ($33 to $47 million) would add a large incremental cost that the other options do not have.

In addition to the higher costs associated with the Alternative E options, there would not be adequate space to construct the proposed Flint Hills siding tracks to provide rail car storage outside the North Pole community. Alternative E does not meet the purpose and need, and the City of North Pole, FHWA, and ADOT&PF have expressed support in favor of eliminating Alternative E. Therefore, Alternative E was eliminated from further consideration.

Impacts to Waters of the U.S. have been considered for Alternatives B, D, and E. Alternatives B and D would have impacts to Waters of the U.S. comparable to those calculated for Alternative A. Alternative E options would have the least impact to Waters of the U.S. as compared to Alternatives A and C (Proposed Action). However, Alternatives B, D, and E are not considered practicable relative to determining the least environmentally damaging alternative (see Section 3.2.1).

### 2.4 Summary of Environmental Consequences

Table 2-1 summarizes the environmental consequences associated with Alternatives A and C (Proposed Action) and the No-Action Alternative for specific resource categories. The environmental consequences of the alternatives are discussed in detail in Section 3.0.
Table 2-1: Comparison of Alternatives

<table>
<thead>
<tr>
<th>Resource Area</th>
<th>Alternative A</th>
<th>Alternative C (Proposed Action)</th>
<th>No-Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical Environment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Quality</td>
<td>Beneficial – by relieving congestion at existing at-grade crossings, there would be a reduction in emissions from idling vehicles at crossings.</td>
<td>Beneficial – same as Alternative A.</td>
<td>No Change -- emissions from idling vehicles at crossings would continue.</td>
</tr>
<tr>
<td>Soils, Geology, and Seismic</td>
<td>Minor – additional fill may result in differential settlement, but Levee has already undergone settlement so differential settlement would be minimal. Geotechnical studies would be conducted during final design to address differential settlement, permafrost, and potential for seismic events.</td>
<td>Minor – similar to Alternative A; much of the fill would be placed on undeveloped areas that could take several years for settlement. Geotechnical studies would be conducted during final design.</td>
<td>No Change</td>
</tr>
<tr>
<td>Flood Hazards and Floodplain Management</td>
<td>Moderate – work would result in a major modification to the Levee. An operational agreement between FNSB, USACE, and ARRC would be needed to ensure continual access to the Levee corridor for inspections, maintenance, flood fighting, major repairs, and obtaining data. Less fill would be needed in the floodplain than with Alternative C.</td>
<td>Minor – minor modifications would occur in some areas, but they would not likely be considered a major modification. An operational agreement between FNSB, USACE, and ARRC would be needed. More fill would be needed in the floodplain than with Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Water Quality</td>
<td>Minor – potential impacts would be minimized using BMPs required by floodplain and stormwater permits.</td>
<td>Minor – same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td><strong>Biological Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uplands</td>
<td>Minor loss of about 86 acres of uplands, which is a small percentage of the abundant similar upland habitat in the vicinity.</td>
<td>Minor – similar to Alternative A, except that about 63 acres of uplands would be disturbed.</td>
<td>No Change</td>
</tr>
<tr>
<td>Wetlands/Waters of the U.S.</td>
<td>Minor – about 12.5 acres would be filled, which is a small percentage of the abundant similar wetlands in the vicinity.</td>
<td>Minor – similar to Alternative A, except that about 20.0 acres would be filled.</td>
<td>No Change</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Minor – some habitat loss and displacement of individual animals would occur, but abundant similar habitat is available nearby (see vegetation and wetlands).</td>
<td>Minor – same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Fish and Essential Fish Habitat</td>
<td>NA</td>
<td>NA</td>
<td>No Change</td>
</tr>
<tr>
<td>Resource Area</td>
<td>Alternative A</td>
<td>Alternative C (Proposed Action)</td>
<td>No-Action</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td></td>
<td>Land Ownership and Land Use</td>
<td>Minor – ROW acquisition of commercial, residential, city, state, and federal lands would be required, and existing land use would change. Relocation of the rail line would be consistent with local land use plans. Net beneficial impact due to relocation of rail line from areas of residential, commercial and office uses with continued access to industrial areas.</td>
<td>Minor – same as Alternative A.</td>
</tr>
<tr>
<td></td>
<td>Property Impacts</td>
<td>Minor – 65 affected parcels (11 developed privately owned parcels) and 17 affected property owners. Requires acquisition of about 200 acres.</td>
<td>Minor- 65 affected parcels (10 developed privately owned parcels) and 17 affected property owners. Requires acquisition of about 177.3 acres.</td>
</tr>
<tr>
<td></td>
<td>Business and Residential Relocations¹</td>
<td>Potential for 4 residential relocations and 6 business relocations on 7 parcels.</td>
<td>Potential for 7 residential relocations and 7 business relocations on 9 parcels.</td>
</tr>
<tr>
<td></td>
<td>Socioeconomics</td>
<td>Beneficial - short-term benefit of increased employment and purchases of local goods and services during construction.</td>
<td>Beneficial - same as Alternative A.</td>
</tr>
<tr>
<td></td>
<td>Safety</td>
<td>Beneficial - reduction in vehicle crossings in the City of North Pole, grade-separated crossing at the Richardson Highway, fewer petroleum tank rail cars traveling and/or stored in the City of North Pole, fewer delays to emergency vehicles.</td>
<td>Beneficial - same as Alternative A; may have less trespass issues due to the separation between railroad and recreational trail.</td>
</tr>
<tr>
<td></td>
<td>Noise and Vibration</td>
<td>Beneficial – rail alignment would be relocated outside of North Pole proper to an area with far fewer noise sensitive receivers. Fewer trains and at-grade crossings, traveling at greater speeds, resulting in less noise and vibration. One residential property that was projected to have a “severe” noise impact will be acquired by the ARRC, and thus, the noise impact will be avoided.</td>
<td>Beneficial – similar to Alternative A, rail alignment would be relocated outside of North Pole proper to an area with far fewer noise sensitive receivers. There would be slightly higher noise levels for a few isolated residential areas, due to closer proximity to the rail alignment; however, no “severe” noise impacts would occur under this alternative.</td>
</tr>
<tr>
<td></td>
<td>Utilities</td>
<td>Minor - the GVEA 138kV line may need to be raised, buried or relocated in 6 locations.</td>
<td>Minor - the GVEA 138kV line may need to be raised, buried or relocated in 3 locations.</td>
</tr>
</tbody>
</table>

¹ Some parcels have both a business and a residence. The number of relocations represents those that may qualify for relocation assistance.
<table>
<thead>
<tr>
<th>Resource Area</th>
<th>Alternative A</th>
<th>Alternative C (Proposed Action)</th>
<th>No-Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation and Section 4 (f)</td>
<td>Minor - Levee trail corridor would be relocated and trail crossings would be established to cross the tracks and allow access to the Tanana River; grade-separated crossings would be constructed in feasible areas. No Section 4(f) impacts (as the trail is not considered a Section 4(f) resource).</td>
<td>Minor - informal trails would be consolidated or eliminated and redirected to designated crossings to decrease the chance of trespassers. Grade-separated crossings, where feasible, would provide access to the Tanana River Levee Trail. No Section 4(f) impacts (as the trail is not considered a Section 4(f) resource).</td>
<td>No Change</td>
</tr>
<tr>
<td>Contaminated Sites</td>
<td>Minor - 4 known or potentially contaminated sites are near the build alternatives, and 9 other sites are near the existing alignment. Further investigation of some sites may be needed prior to construction.</td>
<td>Minor - same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Richardson Highway Crossing</td>
<td>Beneficial - existing at-grade crossing would be eliminated, and replaced with a grade-separated crossing (rail over road), and a temporary at-grade crossing would be needed if construction is phased.</td>
<td>Beneficial - same, except that the grade-separated crossing would be a road overpass (road over rail).</td>
<td>No Change</td>
</tr>
<tr>
<td>Other Railroad Crossings</td>
<td>Beneficial - 10 existing at-grade crossings removed and 3 would see reduced train traffic.</td>
<td>Beneficial - 9 existing at-grade crossings removed and 3 would see reduced train traffic.</td>
<td>No Change</td>
</tr>
<tr>
<td>Transportation Systems/Facilities</td>
<td>Beneficial - fewer at-grade crossings in the community resulting in better traffic flow and fewer conflicts.</td>
<td>Beneficial - same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Operational Efficiency</td>
<td>Beneficial - increased track speeds up to 60 mph and better access to Flint Hills would improve ARRC operating efficiency.</td>
<td>Beneficial - same as Alternative A.</td>
<td>No Change</td>
</tr>
<tr>
<td>Existing/Potential Customers</td>
<td>Beneficial - relocated access and new siding tracks are proposed to serve existing customer Flint Hills Refinery.</td>
<td>Beneficial - similar to Alternative A; the grade difference into the Flint Hills Refinery would be about half that of Alternative A which could require less fill.</td>
<td>No Change</td>
</tr>
</tbody>
</table>

No Change - existing Richardson Highway at-grade crossing would remain.

No Change - all 14 existing at-grade crossings would remain, as would associated safety issues.

No Change - traffic delays and conflicts at-grade crossings would continue.

No Change - operational efficiency would not be improved.

No Change - Flint Hills at-grade crossing and Chapadoes siding would remain.
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Physical Environment

3.1.1 Air Quality

Existing Conditions

Portions of the FNSB, including the City of North Pole, are located within a designated carbon monoxide (CO) maintenance area and a fine particulate matter (PM2.5) non-attainment area. Local emissions contributing to particulate pollution, identified by analysis, include woodstoves, distillate oil, industrial sources, and mobile emissions (ADEC, 2011a and b). Federal actions within these areas are subject to conformity requirements of the Clean Air Act.

In November 2006, Sierra Research, Inc. completed an Air Quality Assessment for the Eielson Branch Realignment Project, which included the project area for the North Pole Road/Rail Crossing Reduction Project. In 2011, Sierra Research, Inc. completed a General Conformity Applicability Analysis for the proposed project, which shared many of the assumptions and analytical methodology with the previous analysis conducted in 2006. Both reports are provided in Appendix C.

Impacts and Mitigation

The conclusions of the 2011 General Conformity Applicability Analysis are summarized below for both build alternatives:

- Worst-case estimates of emissions for the proposed project fall well below the applicability thresholds for CO, PM2.5, and related precursor emissions. A general conformity determination is not required.

- The proposed project is not a regionally significant source of CO emissions.

- No determination for regional significance for PM2.5 and related precursor emissions is possible since a State Implementation Plan for these pollutants has not been prepared. However, violations of the PM2.5 standard occur during winter months, so emissions from the project should not adversely impact attainment planning.

- The trend in ambient concentrations has continued to decline. Since the project will relieve congestion at existing at-grade crossings and reduce time spent at idle, it will not cause or contribute to any new violations of the ambient CO standard.

- The proposed project conforms to the requirements of the General Conformity Rule and no further analysis is required.

Based on the applicability analysis, the United States Environmental Protection Agency (USEPA), ADEC, ADOT&PF, and FHWA have confirmed a conformity determination is not required.

Short-term, localized impacts to air quality during construction are not expected to affect the long-term air quality of the project area or region and would be minimized through the use of
Best Management Practices (BMPs). Dust would be controlled as necessary during construction by watering or using other dust containment measures. Exposed earthwork would be stabilized as soon as practicable to reduce windblown particulates in the area.

Under the No-Action Alternative, at-grade crossings would remain throughout the City of North Pole and traffic congestion would remain the same or slightly increase with changes in population. With no reduction in traffic congestion, there would be no change in traffic-related air quality.

3.1.2 Water Quality

Existing Conditions

Surface water features in the project vicinity consist of the Tanana River, sloughs (Chena, Piledriver, and Thirtymile), various lakes/ponds, wetlands, and drainages. More detailed information regarding surface water features in the project area is included in Section 3.2.1 (Wetlands and Other Waters of the U.S.). Surface water features are important to the area’s water quality maintenance, groundwater recharge, recreation, wildlife habitat, and nutrient cycle. The Tanana River, Piledriver Slough, Chena Slough and its tributary, and Drainage Channel C (associated with the Chena Lakes Flood Control Project) are the dominant water features within the project area (Figure 3-1).

Groundwater flow in the vicinity of the project area is toward the north-northwest and is largely driven by the Tanana River (ADEC, 2011c). Depth to groundwater in the project area ranges between 1 and 60 feet below ground surface (ADEC, 2011d). Within the project area, drinking water is supplied by both individual private wells and the City of North Pole’s water distribution system. This system was established in 2008 with funding provided by Flint Hills in response to impacted groundwater due to a plume of contamination originating from the refinery (see Section 3.3.8, Contaminated Sites). The Drinking Water Protection Area established by the ADEC’s Drinking Water Protection Program is located within the project area (Palmer, 2011).

Based on consultation with the ADEC Drinking Water Protection Program, discussions with the City of North Pole, and a review of ADNR’s Well Log Tracking System, the number of private wells within the project study area is unknown at this time. The City of North Pole’s water distribution system does not extend past city boundaries. The current system serves the majority of those residing within the city boundary. Morning Star, North Star, and Baker Subdivisions are three residential developments that have not been connected to the City’s water system (Figure 3-2) (Butler, 2011). In 2008, the City of North Pole received funding from the U.S. Department of Agriculture, Division of Rural Development to extend services to Baker and North Star Subdivisions (PDC Inc. Engineers, 2011). In addition, the city and Flint Hills Refinery are negotiating with approximately 180 property owners located outside the city boundary to connect them to the public water distribution system (Cook, 2011). According to Flint Hills, the location of the 180 property owners is confidential.

Impacts and Mitigation

Neither build alternative would result in long-term adverse impacts to adjacent surface water bodies (streams and lakes) as no in-water work is proposed for either alternative. Should groundwater be encountered during excavation associated with construction activities,
Dewatering would be conducted in compliance with either the APDES Construction General Permit or the ADEC Wastewater Disposal Excavation Dewatering General Permit and associated BMPs to minimize impacts to groundwater quality.

The implementation of BMPs and development of a Stormwater Pollution Prevention Plan (SWPPP), as well as compliance with the APDES General Permit for Construction Activities, would minimize potential short-term impacts to water quality during construction (e.g., turbidity from stormwater runoff).

Both build alternatives avoid impacts to areas where the City of North Pole waterlines are located within the public water system service area. Potential impacts to private wells could occur if they are within the area that would be acquired for ROW, e.g., in the area where the proposed rail alignment corridor (for both build alternatives) crosses the Richardson Highway (refer to Preliminary Property Impacts in Appendix D). Alternative A would impact three developed properties in this area: one full take and two partial takes. The acquisition of one parcel would result in a full take of the property and therefore would not result in an adverse impact to the property’s drinking water source. The partial takes of two parcels could impact the drinking water source, depending on the location of the wells, which is unknown at this time. Alternative C (Proposed Action) would result in impacts to four developed properties in this area. The acquisition of these parcels would result in full takes and therefore would not result in an adverse impact to the property’s drinking water source.

Under the No-Action Alternative, new rail line would not be constructed; therefore, no changes would occur to water quality or to existing groundwater wells.

3.1.3 Navigable Waters

Existing Conditions

Navigable waterways are those Waters of the U.S. that are subject to the ebb and flow of the tide and/or are presently used, have been used in the past, or may be susceptible to use for transport of interstate or foreign commerce. Certain work performed, or structures constructed, in navigable waters could require permits pursuant to Sections 9 and 10 of the Rivers and Harbors Act of 1899 (33 U.S.C 401 et seq.). The USACE, Alaska District, and ADNR list the Tanana River as navigable for 455 miles (USACE, 2011) (Figure 3-1).

Impacts and Mitigation

Navigable portions of the Tanana River are located near the proposed project area, but outside of the proposed construction limits. Therefore, waters designated as navigable would not be affected by either build alternative or the No-Action Alternative.

3.1.4 Flood Hazards and Floodplain Management

Existing Conditions

Executive Order 11988, Floodplain Management, and U.S. Department of Transportation (USDOT) Order 5650.2, Floodplain Management and Protection, established federal policies for the protection of floodplains and floodways. The intent of these regulations is to avoid, to the
extent practicable, adverse impacts to floodplains; minimize the impact of floods on human safety, health, and welfare; and avoid supporting land use development that is incompatible with natural and beneficial floodplain values.

The Tanana River is the largest tributary to the Yukon River and occupies a structurally controlled basin extending below sea level. Ice jams can occur on both the Tanana and Chena Rivers; these floods typically take place during spring break-up (Bonanza Creek Long-Term Ecological Research, 2011). Discharge into the Tanana River typically consists of glacial melt and snowmelt from the Alaska Range, whereas discharge into the Chena River typically is comprised of upper-basin rainfall and snowmelt (Wegner, 1997). Large flood events generally occur because of high temperatures and excessive rainfall.

In 1973, the USACE, Alaska District constructed the Chena Lakes Flood Control Project to protect the City of Fairbanks and adjacent areas from recurring flood damage from the Chena and Tanana Rivers. The Flood Control Project consisted of constructing an 8.1-mile dam at Moose Creek, a 20.7-mile Levee (approximately 10 feet above the 100-year floodplain) along the Tanana River, and various drainage channels. During flood conditions, the Flood Control Project structures divert water from the Chena River to the Levee-protected Tanana River (USACEb, 2011). The Tanana River Levee is a Federal Project as defined by 33 CFR 208.10 and/or 33 USC 408. It is primarily owned and operated by the FNSB under agreement with the USACE. Ongoing operation of the Levee requires that the FNSB and USACE have continual access for inspection, maintenance, flood fighting, major repairs, and data collection. The Levee was recently recertified by the USACE (USACEa, 2011).

The FNSB participates in flood hazard mapping through the FEMA. FEMA Flood Insurance Rate Maps were reviewed to determine if the project study area is within an active floodplain (Figure 3-3). Community Identification Map 0250090212H and 0250090211H, updated in 1996, indicates that the area on the river side of the Tanana River Flood Control Levee and isolated areas on the landward side of the Levee are within the 100-year floodplain. Based on the current flood hazard mapping, special flood hazard areas inundated by the 100-year flood within the project area are classified as Zone A, which means that a base flood elevation has not been determined. The principle source of flooding within these areas is from rising groundwater tables at existing ponds and local precipitation runoff (Sims, 2011), as opposed to floodwaters from the river, which are contained by the Tanana River Levee. The majority of North Pole is excluded from the 100-year floodplain by its inclusion in the FEMA shaded “Zone X” designation, which is used to describe areas “protected from the one percent annual chance (100-year) flood by the Levee.”

Impacts and Mitigation

Both Alternatives A and C (Proposed Action) are located within portions of the 100-year floodplain and would impact two isolated floodplains (Figure 3-3). Because the FNSB requires permits for fill within special flood hazard areas and/or excavation within 250 feet of the centerline of the Tanana Levee structure, both alternatives would require permits. Proposed construction of the realigned track would conform to applicable protections and compliance regulations outlined by FNSB Title 15, Floodplain Management Standards.
The alternatives were evaluated to determine whether they would have a significant encroachment on floodplains. Under the Executive and USDOT Order 5650.22 – Floodplain Management and Protection, a significant encroachment is described as: “encroachment and any direct support of likely base-flood development that would involve one or more of the following construction-or flood-related impacts:

- A significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route,
- A significant risk, or
- A significant adverse impact on natural and beneficial flood-plain values … which are defined as natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, and forestry.”

Impacts to or encroachment upon the floodplain as a result of either build alternative is not anticipated to be significant, based on comparison of the number of acres impacted by the proposed development to the number of acres available within the existing floodplains to accommodate floodwater storage. Approximately 8.9 acres of floodplain impacts would occur under Alternative A, which represents 2.2% of the total acreage of both floodplains. Approximately 17.7 acres of floodplain impacts would occur under Alternative C, which represents 4.4% of the total acreage of both floodplains.

Neither alternative would increase the potential for interruption of a transportation facility needed for emergency vehicles or that provides the only evacuation route. Further, considering that the impacted area within the 100-year floodplains is less than 10% of any specific Zone A floodplain and less than 5% of the total floodplain area for either alternative, the proposed project is not anticipated to adversely impact the natural and beneficial floodplain values or pose a significant risk.

A more detailed hydrologic and hydraulic (H&H) analysis would be conducted during final design and permitting to verify that the proposed project would not significantly change floodwater storage volumes and/or the base flood elevation within the Zone A (100-year floodplain) special flood hazard areas. If flood risks are identified in the H&H analysis, mitigation measures would be developed and implemented to offset the impacts through construction of additional floodwater storage areas. Potential storage improvements would consider existing groundwater elevations during non-flood conditions. Cross culverts within the Zone A special flood hazard areas would also be installed to maintain hydrologic connectivity within the floodplains.

Altering the Levee to place a railroad embankment on the crown of the Levee, on the stability berm, or within the ROW of the Levee would constitute a modification of the Federal Project. Therefore, build alternatives would require approval from the appropriate level within the USACE for proposed modifications.

Under Alternative A, the railroad would be realigned on top of the existing Levee. The required track roadbed is wider than the Levee, so the Levee would be increased in height and/or widened where required by placing fill, mainly on the landward side, to provide a suitable foundation for
the track. Limited fill may also be required on the riverward side at points along the alignment. If the function of the Levee is altered, then the USACE considers this to be a major modification to the Levee, and requires re-certification. The development of Alternative A would likely be considered a major modification of the Levee, as defined by the USACE, which requires approval from the USACE’s Chief of Engineers, Washington, DC.

The majority of Alternative C (Proposed Action) does not impact the Levee, but the stability berm and ROW would be affected in some areas. Due to constraints associated with roads and water bodies, there are locations where the ROWs of the Levee and rail overlap. In one location, the rail bed may abut a portion of the stability berm for approximately 1,500 to 2,500 feet, depending on final design. In this area, the railroad embankment would be designed to also function as part of the Levee system. It is unlikely that these impacts would require major modification re-certification of the Levee, but approval from USACE and FNSB would be required for any modifications.

Under either alternative, FNSB and USACE would have continual access for inspection, maintenance, flood fighting, major repairs, and obtaining data. Alternative A would include three new at-grade, gated/locked maintenance crossings, which would be constructed at MP G14.2 (Levee Crossing), MP G15.6 (N.P.H.S. Boulevard), and MP G19.0 (Dyke Road). The stability berm would be reestablished, and an access road would be constructed on the riverward side of the Levee to ensure adequate access for FNSB and USACE. Under Alternative C (Proposed Action), a gated/locked at-grade crossing at the Dyke Road would be constructed, while the other two crossings would likely be underpasses.

ARRC and FRA would continue to coordinate with the USACE and FNSB to obtain the necessary approvals for the selected alternative. A plan would be developed by and between the FNSB, USACE, and ARRC to address the entire scope of the proposed project that impacts the Federal Project (e.g., changes in access, property ownership, maintenance responsibility, etc.).

The No-Action Alternative would result in no impacts to flood hazards and floodplain management.

3.1.5 Soils, Geology, and Seismic Conditions

Existing Conditions

North Pole is located in the Tanana-Kuskokwim Lowlands in the relatively flat Tanana River Basin (Péwé, 1993; Shannon & Wilson, 2011). The study area contains discontinuous, potentially thaw-unstable permafrost, underlying sands and gravels, and various soil types such as Fairbanks loess, surficial silts, organic soils, floodplain alluvium, and slough deposits (Shannon & Wilson, 2011). Surficial silty soils are frost-susceptible and pose a potential frost-heaving problem. Underlying sands and gravel are typically clean and not susceptible to frost action. Foundation soils within the Levee consist of dense, relatively low moisture content sand and gravel that have already undergone settlement.

Seismic hazards are present in the proposed project area. Moderate to large earthquakes can and have occurred, although there are relatively few known or postulated active faults within the Tanana-Kuskokwim Lowlands. Nearby past events have had Richter magnitudes of up to 7.3 (Shannon & Wilson, 2011). Earthquake-induced geologic hazards that may affect the site
include liquefaction of soils below the water table and associated effects, including loss of shear strength and slope-stability issues, lateral spreading and cracking of the Levee or roadbed, and potential settlement of the Levee or roadbed due to dynamic densification (Shannon & Wilson, 2011).

Impacts and Mitigation

Under the build alternatives, fill (dense sand and gravel) would be required to construct an adequate structure to support the anticipated train loads. Relative to Alternative A, foundation soils under the Levee have already undergone settlement and shallow permafrost has thawed. Only the newly built out portions of the Levee would undergo additional settlement, and the majority of the future settlement under new fills would come from load-induced consolidation. For Alternative C (Proposed Action), loading of new fill on top of native organic soils could result in differential settlement. Permafrost outside the existing toe of the Levee embankment may undergo thaw and consolidation settlements once fill is placed over undeveloped areas (Shannon & Wilson, 2011). In areas of natural undeveloped terrain, shallow permafrost could experience long-term settlement over a period of several years.

For both alternatives, final design would take into account the region’s potential for earthquake activity to mitigate the potential for damage to the embankment and tracks. Site-specific geotechnical issues such as permafrost and settlement would also be addressed during final design. Strategies that may be implemented, as necessary, to mitigate thaw settlement include removing surficial silty/organic soils and replacing with clean granular fill, passively refrigerating the sub-grade to maintain the integrity of the permafrost and reduce the potential for thaw-settlement, and/or pre-thawing the silty sub-grade soils by stripping the organics and allowing the sub-grade to thaw naturally.

Under the No-Action Alternative, the new rail line would not be constructed and operated; therefore, no changes would occur to soils, geology, or seismic conditions.

3.2 Biological Environment

3.2.1 Wetlands and Other Waters of the United States

Existing Conditions

Wetlands, which are protected under Section 404 of the Clean Water Act and Executive Order 11990, are common throughout the North Pole area. Their primary functions include groundwater discharge and recharge, surface hydrologic control, and sediment retention. Project Study Area wetlands provide habitat for various wildlife species for nesting and foraging. They are also used by humans for recreation, hunting, and fishing.

For the North Pole Road/Rail Crossing Reduction Project, a wetlands delineation area was defined to include 553 acres along the Tanana River Flood Control Levee and a portion of the existing ARRC corridor through North Pole, as illustrated on Figure 3-4. A total of five jurisdictional habitats (three wetlands and two other Waters of the U.S.) were identified within the wetlands delineation area and are documented in the Wetlands Delineation/Vegetation Mapping and Functions and Values Assessment Report. This report is included as Appendix E and contains photographs and detailed descriptions of each wetland community type.
A summary of the extent of wetland coverage within the wetlands delineation area is provided in Table 3-1. The jurisdictional determination was submitted for approval to the USACE on August 4, 2011.

Table 3-1: Wetlands within the Delineation Area

<table>
<thead>
<tr>
<th>Wetlands</th>
<th>Functional Value</th>
<th>Area (acres)</th>
<th>Percent of Wetland Delineation Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistent Emergent Wetland</td>
<td>High</td>
<td>6</td>
<td>1%</td>
</tr>
<tr>
<td>Deciduous Scrub-Shrub Wetland</td>
<td>Medium</td>
<td>32</td>
<td>6%</td>
</tr>
<tr>
<td>Mixed Evergreen Forest Wetland</td>
<td>Low</td>
<td>36</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Other Waters of the U.S.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponds</td>
<td>High</td>
<td>11</td>
<td>2%</td>
</tr>
<tr>
<td>Lower Perennial Stream</td>
<td>High</td>
<td>0.16</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

Photograph 1: Mixed Evergreen Forest Wetlands

Mixed evergreen forest wetlands, dominated by tall and low trees with generally sparse herbaceous layers, are the most abundant wetland habitats within the delineation area and were documented along the Levee, the existing rail corridor, and within the GVEA corridor. Deciduous scrub-shrub wetlands, dominated by tall and low shrubs with sparse herbaceous layers, were widely distributed throughout the project area. Persistent emergent wetlands, characterized by dense herbaceous layers and pockets of standing water, were found in small patches in natural clearings and bordering open bodies of water.
Photograph 2: Ponded Area Within Delineation Area

Waters of the U.S. present within the wetlands delineation area include ponds and lower perennial streams. Numerous ponds occur along the Levee and existing railroad tracks, serving as habitat for waterfowl and a variety of hydrophytic plant communities. Ponds within the wetlands delineation area provide functional values associated with floodwater storage and groundwater recharge. Habitats identified as streams or drainages are flowing water bodies per 33 CFR Part 328, Definition of Waters of the U.S. Lower perennial streams in the delineation area have an overall high functional value because of their ability to absorb displaced water during flood events and to provide erosion and sedimentation functions.

Impacts and Mitigation

Both build alternatives involve long-term permanent impacts to wetlands (refer to Wetland Impacts Mapping included in Appendix F). Approximately 12.5 acres of wetlands would be filled under Alternative A, including 0.2 acres specifically associated with construction of the temporary at-grade crossing if phasing of construction is necessary. A total of approximately 20.0 acres would be filled under Alternative C (Proposed Action). Table 3-2 compares the wetland types that would be affected under each alternative.

<table>
<thead>
<tr>
<th>Wetland Type</th>
<th>Alternative A (Acres)</th>
<th>Alternative C (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergent Wetlands (PEM1C &amp; PEM1H)</td>
<td>1.49*</td>
<td>0.49</td>
</tr>
<tr>
<td>Scrub/Shrub Wetlands (PSS1B &amp; PSS1C)</td>
<td>2.32</td>
<td>8.53</td>
</tr>
<tr>
<td>Pond (POWH)</td>
<td>0.00</td>
<td>1.15</td>
</tr>
<tr>
<td>Mixed Evergreen/Forest Wetlands (PF04B &amp;PF04C)</td>
<td>8.66</td>
<td>9.83</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12.47</strong></td>
<td><strong>20.01</strong></td>
</tr>
</tbody>
</table>

*Additional 0.20 acres associated with phased construction requiring a temporary at-grade crossing.

The impact of these losses is considered minor because the onsite wetlands are neither limited nor unique to the greater landscape as shown on Figure 3-4. Additionally, many of the wetlands within the delineation area are adjacent to or within previously disturbed areas.

Executive Order 11990, Protection of Wetlands, requires that there be no practicable alternative to the Proposed Action and that the project includes all practicable measures to minimize harm to wetlands. In addition, Section 404(b)(1) of the Clean Water Act requires the USACE to analyze whether there is “a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem” (40 CFR 230.10(a)). An alternative is considered practicable
if it is “available and capable of being done, taking into consideration cost, existing technology, and logistics in light of the project purpose” (40 CFR 230.3(q)). The Clean Water Act Section 404(b)(1) guidelines require the USACE to select the “least environmentally damaging practicable alternative” (LEDPA). Although it is not the FRA’s role to identify the LEDPA, it is incumbent upon the FRA as part of its NEPA analysis to consider whether the alternatives carried forward for detailed analysis in the EA may or may not be practicable, to aid the USACE’s determination of the LEDPA. FRA understands that it is the USACE’s responsibility to determine whether the alternative set forth in the Applicant’s Clean Water Act application constitutes the LEDPA during the permitting process, following public review.

As illustrated on Figure 3-4, a strictly upland route capable of accommodating a rail corridor is not available within the project study area. Design requirements for rail alignment necessitate relatively straight stretches of land and preclude substantial and frequent turns. Therefore, complete avoidance of wetlands is not practicable.

Alternative A is not considered to be a practicable alternative to the Proposed Action in the context of Section 404(b)(1) for the following reasons:

1) **Cost**: Alternative A has a substantially greater cost than Alternative C (Proposed Action). Alternative A is estimated to cost $95 million to construct, and Alternative C (Proposed Action) is estimated to cost $60.9 million. The cost difference is largely due to the detailed studies/design required for constructing the rail on top of the Levee and the much larger quantities of fill required for Alternative A. Alternative A would also result in greater maintenance costs, due to additional settlement that would occur from the increased embankment load, resulting in potential differential cross-track settlement (TranSystems, 2011).

2) **Logistics**: Alternative A has several logistical challenges as compared to Alternative C (Proposed Action).

   a. While Alternative A is not technically infeasible, the USACE would consider construction of the railroad within the Levee ROW to be a major modification to the Levee, which would require a lengthy and complicated re-certification process. Structural analysis, design, and flood plain study would be required. Once this information has been provided to USACE, a determination by USACE Chief Engineer in Washington D.C. would be required. Some of the reasons a re-certification may not be accepted are: inherent risk of train operations on critical infrastructure; inherent risk of shared operation and maintenance access - vehicle or worker in foul zone of train operation; inadequate shared access for appropriate inspection of track and Levee - additional width/space would increase wetland impact. It is not clear how long the re-certification process would take, or the extent of geotechnical studies that would be required to demonstrate the viability of the Levee with the added load. It is also not clear whether the USACE would ultimately approve the railroad to be constructed on top of the Levee, as part of that re-certification process. If a determination is made that the rail should not be placed on the Levee the EA process may be re-opened, but millions of dollars would have already been expended for studies and design, for an alternative that ultimately is not going to be constructed.
b. The potential liability that ARRC would incur during construction and long term due to the presence of the railroad on the Levee. During construction, ARRC may have to purchase flood insurance for residences protected by the Levee, which would increase overall construction costs. Construction may also need to be very tightly controlled, with only one week’s worth of work opened up at a time, so preparations could be made in the event of a predicted flood event. An additional concern regarding Alternative A is whether the ARRC would have to take on the responsibility for maintenance of the structure, or repair of damages, if the railroad was built on top of the Levee, which would also have cost implications.

c. Challenges associated with a shared Levee/railroad ROW, including FNSB and ARRC access requirements for maintenance activities of both the Levee and the railroad. FNSB and the USACE have stressed that there would need to be adequate access for inspection, maintenance, and flood fighting activities, which would require an additional access road on the riverward side of the Levee. Additionally, FNSB has indicated there may be a need for ARRC to stop service or change train schedules during potential flood emergencies, which is a significant constraint to ARRC’s operations.

Similarly, as described in Section 2.3, several other alternatives initially evaluated for this project were eliminated from further consideration, and not carried forward for a detailed analysis in this EA (Alternatives B, D, and E). Alternatives B and D would have impacts to Waters of the U.S. comparable to those calculated for Alternative A. Alternative E options would have the least impact to Waters of the U.S. However, like Alternative A, they would not be considered practicable based on cost and logistics. They also have other associated environmental impacts that would prevent them from being considered the LEDPA, which are summarized in Section 2.3 and detailed in the Alternatives Analysis (Appendix B).

Alternative C (Proposed Action) includes all practicable measures to minimize harm to wetlands. Use of silt fences and other BMPs would minimize water quality impacts to wetlands. ARRC would clearly identify vegetation clearing and construction limits (boundaries) by staking, flagging, and/or fencing to prevent physical disturbance beyond the project limits authorized by the USACE Section 404 Permit. ARRC would comply with the provisions of the Section 404 Permit, including compensatory mitigation for unavoidable impacts to wetlands. Temporary impacts to wetlands during construction would be minimized, and staging activities would occur in non-wetland locations to the extent possible. Native vegetation would be reestablished in areas that are temporarily disturbed. Adequately sized drainage structures would be installed as needed through the embankment to retain existing drainage patterns.

Under the No-Action Alternative there would be no direct impacts to wetlands or other Waters of the U.S. Indirect impacts to wetlands and other Waters of the U.S. would continue due to existing and continued use by off-road vehicles and other recreationalists.

3.2.2 Uplands

Existing Conditions

A total of three upland types were identified in the delineation area. Uplands comprise approximately 461.88 acres (83%) of the delineation area. Forested uplands are dominated by a
birch (*Betula papyrifera*), black spruce (*Picea mariana*), and willow (*Salix*) canopy. Scrub-shrub uplands are dominated by dwarf birch (*Betula nana*), willow, and prickly rose (*Rosa acicularis*). Disturbed areas occur throughout the delineation area and consist of development associated with roads, housing, businesses, industrial complexes, construction areas, and cleared land with limited vegetation. Table 3-3 summarizes the uplands within the delineation area.

<table>
<thead>
<tr>
<th>Area (acres)</th>
<th>Percent of Wetland Delineation Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forested Uplands</td>
<td>294</td>
</tr>
<tr>
<td>Scrub-Shrub Uplands</td>
<td>26</td>
</tr>
<tr>
<td>Developed/Disturbed</td>
<td>148</td>
</tr>
</tbody>
</table>

**Impacts and Mitigation**

Both build alternatives would permanently impact upland habitats. Based on preliminary design, approximately 86 acres of forested or scrub-shrub uplands would be developed as a result of Alternative A and 63 acres of forested or scrub-shrub uplands would be developed as a result of Alternative C (Proposed Action). These impacts are not expected to be significant. The quality of the upland habitat has been compromised in the areas proposed for development due to the construction of the existing utility corridor, the Levee corridor, Levee maintenance, and human disturbances associated with recreational use. The No-Action Alternative would result in no direct impacts to uplands.

Short-term, temporary impacts to vegetated upland habitats are expected during construction. These disturbances are not expected to substantially reduce habitat in the area. ARRC would clearly identify vegetation clearing and construction limits (boundaries) by staking, flagging, and/or fencing to prevent physical disturbance beyond the project limits. Vegetation would be reestablished in areas that are temporarily disturbed using non-invasive species.

3.2.3 **Fish**

**Existing Conditions**

The Alaska Department of Fish and Game’s (ADF&G) Anadromous Waters Catalog identified Piledriver Slough (ADF&G Stream No. 344-40-11000-2490-3315) and the Tanana River (ADF&G Stream No. 334-40-11000-2490) as the only anadromous water bodies within the study area (Figure 3-1). Piledriver Slough is located on the riverward side of the Tanana River Flood Control Levee and runs along the Levee at the intersection of the Old Richardson Highway and Dyke Road. Piledriver Slough has been cataloged as anadromous because it supports spawning populations of chum salmon. The Tanana River is an anadromous stream due to the presence of Chinook, Coho, and Chum salmon species (ADF&G, 2011a).
Resident fish species in the Tanana River include Arctic grayling, whitefish, least cisco, northern pike, burbot, long-nose suckers, slimy sculpin, lake chub, Arctic lamprey, and sheefish (ADF&G, 1998).

All waters that support anadromous fish species are considered Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservations Management Act. EFH is defined as “waters necessary to fish for spawning, breeding, feeding, or growth to maturity” by the Magnuson-Stevens Fishery Conservation and Management Act. Any work within EFH requires an EFH Assessment and consultation with National Marine Fisheries Service (NMFS).

Impacts and Mitigation

There are no proposed anadromous stream crossings or stream impacts within the study area. Neither build alternative will require work below the ordinary high water mark of any water body that contains fish; therefore, no direct impacts to EFH are anticipated.

Alternative A is located on top of the Tanana River Levee and would require that the Levee be increased in height and/or widened by placing fill on the landward side of the Levee to provide a suitable foundation for the track. Limited fill may also be required on the riverward side at varying points along the proposed alignment, although not in the Dyke Road area, where Piledriver Slough is directly adjacent to the Levee. In this area, the two build alternatives come together and are located on the landward side of the Levee.

BMPs would be implemented to prevent and minimize potential short-term indirect impacts to anadromous streams during construction, such as decreases in water quality (due to increased sedimentation and erosion) or quantity or loss of wetlands adjacent to streams (see Section 3.2.1).

The No-Action Alternative would not result in any short- or long-term impacts to fish or EFH.

3.2.4 Wildlife

3.2.4.1 Mammals

Existing Conditions

The project area provides a diversity of upland and wetland habitats capable of supporting an array of wildlife utilization. Mammals identified as potentially occupying the project area include: shrews, voles, weasels, snowshoe hare, red squirrels, northern flying squirrels, beaver, porcupine, coyote, red fox, wolf, black and brown bears, and moose (ADF&G, 2010). None of these species are listed as State Species of Concern or federally threatened or endangered (ADF&G, 2011b and U.S. Fish and Wildlife Service [USFWS], 2011a).

The Tanana River Flats, located adjacent to the Levee on the riverward side, is an intensive management area for moose. Urban and undeveloped portions of the greater North Pole area are used by resident and migratory populations. Moose winter in the river valleys to the northeast of North Pole and cross the Tanana River to the Tanana Flats for calving and summer feeding (Durst, 2011). This population likely crosses the existing and proposed rail alignments at least twice a year.
Impacts and Mitigation

Scoping comments from the resource agencies expressed concern that an increase in train speed will result in an increase in moose-train collisions. Previous studies did not find a significant correlation between a reduction in train speed and moose strikes (Becker, 1991). Rather, snow depths and the availability of escape routes have been suggested as more directly related to collisions. Maintenance of the existing Flood Control Levee Trail with separation from the rail corridor, as proposed in Alternative C (Proposed Action), may provide a travel route of lesser snow depth for moose, thus reducing the long-term incidences of moose-train collisions.

Changes in railway height and width, plowed conditions along the railway, and train speeds could potentially affect moose crossing and milling behaviors around the tracks. However, the proposed realignment extends through the same general area as the existing track, so would not significantly increase the number of crossings associated with the migratory patterns of the local population. Therefore, an increase in moose mortality is not anticipated.

The short-term impacts of the proposed alternatives would include brush clearing and physical disturbance of habitat during the construction phase. Long-term impacts would result in minor habitat loss and displacement of species from the realignment area. The habitats in the project area are neither unique nor limited in the surrounding landscape, allowing mobile species to be displaced to similar habitats in adjacent areas. Large mammals, with greater territories, would be less likely to be negatively impacted by the proposed habitat loss.

The No-Action Alternative would be consistent with baseline conditions, and any impacts would be limited to temporary disturbances associated with passing trains and ROW.

Spring and early summer present the most vulnerable times for many small and large mammals. Reproductive and rearing efforts of numerous species could be adversely affected by brush clearing and habitat disturbance during these months, resulting in unintentional mortality. Avoidance of disturbance activities during May and June would effectively mitigate such impacts. ARRC has coordinated moose mitigation programs with ADF&G elsewhere along the rail corridor and would continue to mitigate potential moose strikes consistent with the existing programs.

3.2.4.2 Birds

Existing Conditions

The USFWS conducted an extensive survey of birds near the project area (Martin, Spangler et al., 1995). This study identified nesting species and the relative abundance of birds in a variety of habitat types. Nesting birds included thirteen species of water birds, three species of shorebirds, and nineteen species of passerines.

Comparisons of bird presence in different habitat types in the USFWS study were generally consistent with earlier work in the upper Tanana Valley (Spindler and Kessel, 1980), with the highest numbers of birds and numbers of species in tall shrub habitats, and the fewest birds and species in black spruce habitats. The USFWS study found that compared to sites along roads, survey sites along the Levee had significantly lower values for both numbers of birds and species observed, but it was not clear if these differences were due to habitat differences or the timing of
sampling different sites (Martin, Spangler et al., 1995). Bald Eagle nests have been located in
the vicinity of the project area (USFWS, 2011B). According to the USFWS Bald Eagle nest
database, existing nests are beyond the requisite 660-foot buffer between active nests and
proposed construction activities (Figure 3-5).

Two raptor nests were identified within the project study area during the 2011 wetlands
delineation. Each nest was located on top of the GVEA line support poles. One nest was
occupied at the time of observation, but the species could not be determined. The location of
both nests is identified on Figure 3-5.

**Impacts and Mitigation**

Potential indirect impacts to birds include displacement from the proposed realignment of the
track and added noise from passing trains. Relocation of the trail under Alternative A could also
cause displacement as a result of an increase in human presence. In addition, the GVEA
overhead electric line that runs parallel to the alternatives would fall within the standard 200-foot
ROW. Therefore, relocation of the GVEA line in some locations would be required to mitigate
access issues. Relocation of the GVEA line could impact raptor nests located on the support
poles, depending on the areas chosen for relocation. More information on utilities is included in
Section 3.3.1.1.

Increased human presence and noise and could cause temporary disturbances to birds adjacent to
the project area. In addition, construction activities could temporarily increase fugitive dust in
the immediate area that could result in an impact to adjacent vegetation, reducing photosynthetic
rates. With implementation of appropriate dust control measures, the potential for these impacts
is low.

Clearing of vegetation during the nesting season could result in direct mortality of eggs and
nestlings. Mortality to eggs and young could also occur from nest abandonment in adjacent
areas if construction occurs during the breeding season. Under the Migratory Bird Treaty Act
(16 U.S.C. 703), it is illegal for anyone (unless permitted by regulations) to “take” (hunt, pursue,
wound, kill, posses, or transport) migratory birds, their eggs, feathers, or nests. Destruction of
active bird nests, eggs, or nestlings can result from spring and summer vegetation clearing and
grubbing, which would violate the Migratory Bird Treaty Act. To minimize the potential
impacts to migratory birds and violation of the Migratory Bird Treaty Act, ARRC would comply
with the USFWS recommended time periods for avoiding vegetation clearing for Interior Alaska
(USFWS, 2007).

Under the No-Action Alternative, impacts on birds would be the same as baseline conditions and
limited to temporary disturbance from passing trains and maintenance of the ROW.

3.2.5 Threatened and Endangered Species

**Existing Conditions**

No endangered, threatened, or other federally protected species or designated critical habitat
exists in the project area (USFWS, 2011). Bald and Golden Eagles and their nests are protected
under the Bald and Golden Eagle Protection Act (16 U.S.C. Section 668 et seq.). No Bald or
Golden Eagle nests are known to be present in the study area.
Impacts and Mitigation

No endangered, threatened, or other federally protected species would be affected by either build alternative or the No-Action Alternative.

3.3 Human Environment

3.3.1 Land Ownership and Use

Existing Conditions

The study area is located within the FNSB in interior Alaska. The Fairbanks area is the second largest population center in Alaska with an estimated 97,581 residents in 2010 (U.S. Census Bureau, 2011a). The borough has only two incorporated municipalities, the City of Fairbanks and the City of North Pole. Approximately 32% of the borough’s residents (31,535) live in Fairbanks, the borough seat. The 2010 population of North Pole was estimated at 2,117 (U.S. Census Bureau, 2011a). The majority of borough residents (65%) live in unincorporated communities in the borough. The FNSB is a second class borough and has land use regulation authority on all lands in the borough, inside and outside of incorporated cities. The City of North Pole is a Home Rule city; the project study area encompasses much of the land within the city boundaries.

Land ownership in the study area is primarily private landward of the Tanana River Flood Control Levee. The Levee was constructed in the 1970s by the USACE; however, ownership and maintenance responsibilities have since been transferred to the FNSB for a portion of the project area. Within the study boundary, the USACE has retained ownership and maintenance responsibility for approximately 0.9 miles of the Levee, from the approximate projection of Armistice and VFW streets and the Levee to approximately Dyke Road (refer to Appendix D for parcel maps).

The lands riverward of the Levee within the study area are primarily owned by FNSB, with some riverside areas owned by the Alaska Mental Health Trust and ADNR. The City of North Pole owns several smaller parcels in the center of the city as well as two larger parcels south of North Pole High School.

The existing rail line travels through the center of North Pole, adjacent to lands designated for a mixture of commercial, residential and office uses. Borough and city land use plans specifically call for the relocation of the rail line out of the city center.

The FNSB Comprehensive Plan designates much of the study area north of the Tanana River Levee as Urban Area, with some light and heavy industrial areas (FNSB, 2005). The central portion of North Pole is designated as Urban Preferred Commercial Area. Borough lands riverward of the Tanana River Levee are designated as Reserve Areas. The Comprehensive Plan identifies numerous objectives and strategies consistent with the built alternatives, including the encouragement of “a reroute of the railroad to reduce the number of at-grade railroad crossings.”

The North Pole Land Use Plan (FNSB, 2010) designates areas adjacent to the proposed rail realignment are primarily Light Industrial, Heavy Industrial, Urban, and Perimeter Areas (Figure 3-6). An area south and west of the Tanana River Flood Control Levee is also designated as an
off-highway vehicle land use area in the North Pole Land Use Plan. It identifies a proposed 200-foot ROW for railroad relocation along the Levee corridor.

The FNSB adopted a Comprehensive Recreational Trail Plan in 2006. This plan identifies the Tanana River Flood Control Levee Trail as the main recreational trail connection between Fairbanks and North Pole (FNSB, 2006). The plan also notes that this route is considered to be the optimal southern portion of the 100-Mile Loop Trail. More information on the Tanana River Flood Control Levee Trail is included in Section 3.3.7 (Recreation and Section 4(f)/Section 6(f) Properties).

FNSB zoning regulations are codified in Title 18 of the FNSB Code. The majority of the study area is zoned General Use (53%), Rural (20%), or Heavy Industrial (10%). The existing rail corridor passes through numerous zone districts (Figure 3-7) and does not have or require its own zoning designation.

**Impacts and Mitigation**

Relocation of the rail line would require ROW acquisition from both private and public landowners but would improve land use compatibility, consistent with local land use plans. Access to existing and potential recreational facilities would be accommodated, consistent with local land use and recreation plans. (See Section 3.3.7 for more detail on impacts and mitigation for recreational uses.)

Long-term effects on land use from the rail line relocation would be positive, as the rail line would be relocated from areas of residential, commercial and office uses but would continue to provide access to industrial lands, consistent with the borough and city land use plans. No zoning changes are anticipated.

Property acquisition would result in direct and unavoidable adverse impacts to some property owners through partial or full acquisitions. Table 3-4 summarizes the affected parcels for Alternatives A and C (Proposed Action). It includes ROW required for the rail line and for the Richardson Highway crossing. ADOT&PF’s needs for accommodating frontage road modifications and overpass embankment slopes have been considered in developing the estimates. Appendix D provides detailed property maps and listings of potential full and partial parcel acquisition. Under both alternatives, the majority of the affected land is publicly owned (FNSB, ADNR, BLM, or the City of North Pole).

Alternative A affects 65 parcels (11 developed privately owned parcels), 17 different landowners, and would require acquisition of about 200 acres of land (TranSystems, 2011). In comparison, Alternative C (Proposed Action) affects 65 parcels (10 developed privately owned parcels), 17 different landowners, and would require acquisition of about 177.3 acres of land (TranSystems, 2011).

Appendix J provides a Relocation Study that further evaluates the parcels developed with either residences and/or businesses to assess whether property or business owners could require relocation assistance. Some parcels include both residential and business uses, and anticipated acquisition of parcels may be either partial or full. However, even with partial acquisition, some residences and business may qualify for relocation assistance. Under Alternative A, there is a potential for 4 residential relocations and 6 business relocations on 7 parcels. Under
Alternative C (Proposed Action), there is a potential for 7 residential relocations and 7 business relocations on 9 parcels. This represents a worst case scenario, and relocation needs would be refined during final design.

In addition, an easement or ROW acquisition and permits (e.g., temporary permit for construction activities) from the FNSB and USACE would be required. An ADOT&PF utility permit and/or easement may also be needed for the relocated crossing of the Richardson Highway.

Under the No-Action Alternative, the rail line would continue to cross through the city center. There would be no changes to land ownership or use and no changes to recreation access or use. This alternative is not consistent with local land use plans, which call for relocation of the rail alignment to reduce land use conflicts in the center of North Pole.

**Table 3-4: Comparison of Parcels Affected for Alternatives A and C**

<table>
<thead>
<tr>
<th>Parcels Affected</th>
<th>Alternative A</th>
<th>Alternative C (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Parcels</td>
<td>Acres Affected</td>
</tr>
<tr>
<td>Full Take Parcels</td>
<td>10</td>
<td>17.48</td>
</tr>
<tr>
<td>Partial Take</td>
<td>44</td>
<td>162.23</td>
</tr>
<tr>
<td>Easement</td>
<td>11</td>
<td>20.27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>65</strong></td>
<td><strong>199.98</strong></td>
</tr>
<tr>
<td>Private - Vacant</td>
<td>5</td>
<td>13.29</td>
</tr>
<tr>
<td>Private - Residential</td>
<td>1</td>
<td>0.83</td>
</tr>
<tr>
<td>Private – Commercial</td>
<td>1</td>
<td>0.72</td>
</tr>
<tr>
<td>Private – Industrial</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Public Land (FNSB)</td>
<td>3</td>
<td>2.64</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>17.48</strong></td>
</tr>
<tr>
<td>Private - Vacant</td>
<td>7</td>
<td>4.96</td>
</tr>
<tr>
<td>Private - Residential</td>
<td>2</td>
<td>1.95</td>
</tr>
<tr>
<td>Private – Commercial</td>
<td>2</td>
<td>1.19</td>
</tr>
<tr>
<td>Private – Industrial</td>
<td>5</td>
<td>13.35</td>
</tr>
<tr>
<td>Public Land</td>
<td>28</td>
<td>140.78</td>
</tr>
<tr>
<td>ADNR</td>
<td>6</td>
<td>34.86</td>
</tr>
<tr>
<td>FNSB</td>
<td>13</td>
<td>75.42</td>
</tr>
<tr>
<td>USA-BLM</td>
<td>9</td>
<td>30.50</td>
</tr>
<tr>
<td>North Pole, City</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>44</strong></td>
<td><strong>162.23</strong></td>
</tr>
</tbody>
</table>

1. These acreages and the question of full vs. partial take may be refined during final design and the property acquisition phase based on negotiations with property owners.
2. Some parcels identified as commercial or industrial also contain residences, and vise-versa. Use (vacant, residential, commercial, and industrial) in this table is based on property tax classification.

Mitigation of adverse effects associated with ROW acquisition and relocation of residents and businesses would be accomplished in compliance with the federal and state regulations on property acquisition and relocation. All land acquisition and relocation of residents and businesses would be completed in accordance with the Federal Uniform Relocation Assistance
and Real Property Acquisition Act (as amended) and the Alaska Relocation Assistance and Real Property Acquisition Practices adopted under state statute (AS 34.60). Once the funding and schedule for project construction are better defined, ARRC and ADOT&PF real estate representatives will work together to develop a process for acquiring the ROW necessary for the Richardson Highway crossing and overpass concurrently with acquisition of the ROW for the realignment, and to streamline the conveyance process.

At this time, it is not clear what would happen with the ROW, relative to land ownership, for the portion of the existing alignment that would no longer be used for railroad operations. Conveyance of existing ARRC lands to other parties is governed by statute (AS 42.40) and requires legislative approval, so this is not an environmental issue pertinent to the EA.

3.3.1.1 Utilities

Existing Conditions

The City of North Pole operates water and wastewater services within the city. Approximately 75% of city residents are estimated to be served by city water and/or wastewater in 2011, and only three subdivisions in the city are not on public water; Morning Star, North Star, and Baker subdivisions (Butler, City of North Pole, 2011). None of these subdivisions are in the project study area. The study area for this phase of the rail reconstruction is situated mostly along the Tanana River Flood Control Levee corridor; this area is mostly comprised of vacant land and is outside the area served by city water and wastewater (see Figure 3-2). The only city utility facility in the study area is the wastewater line that leads to the effluent outfall into the Tanana River. This line crosses under the Levee near the Flint Hills refinery.

Electric power in the study area is provided by GVEA’s 190 megawatt power generation plant in North Pole, adjacent to the Flint Hills refinery, and accounts for over 60% of GVEA’s generation capacity (GVEA, 2010). Electric from this plant is fed into the GVEA system through a 138 kilovolt transmission line between the North Pole facility and GVEA’s larger transmission grid in Fairbanks. GVEA provides power to over 100,000 residents of the interior.

The most significant utility located in the area is the GVEA overhead transmission line that runs along the Levee through the study area. This line connects the North Pole power generation facility into GVEA’s transmission grid and removing this transmission line from operation would have implications for providing electric power to residents from Cantwell to Fort Greely. De-energizing this transmission line for relocation or other changes would require construction of an alternative transmission line to maintain reliable service to GVEA customers. Construction of an alternative line would take significant advance planning.

Impacts and Mitigation

Realignment of the rail line under Alternative A would require relocation of limited portions of the GVEA electric transmission line and/or other changes to the line. Where the proposed rail line crosses the GVEA transmission line near Richardson Highway, the line would likely need to be raised, buried, or relocated. The proposed rail spur to the Flint Hills refinery would also cross the GVEA transmission line and the line may need to be relocated or raised at this location. The proposed rail alignment crosses the GVEA transmission line again near Old Richardson Highway, west of Dyke Road. Some poles may need to be relocated in this area. As mentioned
above, GVEA’s North Pole power generation facility provides over half of GVEA’s generation capacity and power from this plant is connected to the GVEA grid through this transmission line. Any changes to this transmission line would require coordination with GVEA to design and construct an alternative transmission line to provide service during relocation or changes to the main transmission line.

The utility conflicts for Alternative C (Proposed Action) are similar to Alternative A, except that the GVEA line near Richardson Highway would not be impacted since the track alignment would be placed outside the GVEA line on the landward side. Potential impacts to existing utilities are listed in Table 3-5.

The No-Action Alternative would not be anticipated to have any direct or indirect effects on utilities.

Effects on existing utilities would be mitigated through coordination with appropriate utility companies during design and construction so that utilities are protected during project-related construction activities. ARRC would minimize disruptions to utilities by scheduling project-related construction work and outages to low-use periods to the extent possible. ARRC would notify residents and other utility customers in advance of project-related construction activities requiring temporary service interruption. A temporary at-grade crossing of the Richardson Highway may be required if construction is phased due to availability of funding. If this is the case, utility relocations would be performed at one time, so no new relocations/conflicts would occur when the overpass is constructed.
### Table 3-5: Potential Utility Impacts

<table>
<thead>
<tr>
<th>Utility</th>
<th>Owner</th>
<th>Station¹</th>
<th>Additional Notes</th>
<th>Alternative A</th>
<th>Alternative C (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead Utility</td>
<td>Unknown</td>
<td>1+54</td>
<td>Near Rentals Street</td>
<td>Potential raise</td>
<td>No impact</td>
</tr>
<tr>
<td>Underground Petroleum</td>
<td>Unknown</td>
<td>10+10</td>
<td>Near Rentals Street</td>
<td>No impact</td>
<td>No impact</td>
</tr>
<tr>
<td>Underground Fiber Optic</td>
<td>Alaska Fiber Star</td>
<td>29+69</td>
<td>Near Rentals Street</td>
<td>Potential impact, fill likely on top of utility</td>
<td>No impact</td>
</tr>
<tr>
<td>Overhead Power 138 kilovolt</td>
<td>GVEA</td>
<td>62+20</td>
<td>Crosses Tanana River Levee</td>
<td>Raise and relocate</td>
<td>No impact</td>
</tr>
<tr>
<td>Storm Sewer Outfall</td>
<td>Unknown</td>
<td>204+83</td>
<td>Near North Pole High School</td>
<td>No impact</td>
<td>No impact</td>
</tr>
<tr>
<td>Overhead Power 138 kilovolt</td>
<td>GVEA</td>
<td>261+60</td>
<td>Crosses proposed Flint Hills connection</td>
<td>No impact</td>
<td>Raise</td>
</tr>
<tr>
<td>Water Well</td>
<td>Unknown</td>
<td>205+96</td>
<td>Near North Pole High School</td>
<td>Potential impact</td>
<td>No impact</td>
</tr>
<tr>
<td>Overhead Power 138 kilovolt</td>
<td>GVEA</td>
<td>356+88</td>
<td>Crosses Tanana River Levee west of Dyke Road</td>
<td>Raise and Relocate</td>
<td>Raise and Relocate</td>
</tr>
<tr>
<td>Overhead Power</td>
<td>GVEA</td>
<td>375+09</td>
<td>Near Dyke Road - existing poles north of proposed Old Richardson Highway</td>
<td>No impact</td>
<td>No impact</td>
</tr>
<tr>
<td>Underground/Over head Telephone</td>
<td>Unknown</td>
<td>375+80</td>
<td>Near Dyke Road - south of proposed Old Richardson Highway</td>
<td>Potential relocate; impact same for both alternatives</td>
<td>Potential relocate; impact same for both alternatives</td>
</tr>
<tr>
<td>Underground Fiber Optics</td>
<td>Unknown</td>
<td>375+88</td>
<td>Near Dyke Road</td>
<td>No Impact</td>
<td>No Impact</td>
</tr>
</tbody>
</table>

¹ Stationing provided for geographical reference only. Stationing starts at Rentals Street and follows the alignment of the existing Tanana River Flood Control Levee.

Source: TranSystems, 2011

#### 3.3.2 Socioeconomics

**Existing Conditions**

As mentioned above, the Fairbanks area is the second largest population center in Alaska with an estimated 97,581 residents in 2010 (U.S. Census Bureau, 2011a). The City of North Pole had a population of 2,117 in 2010 (U.S. Census Bureau, 2011a). Most residents of the FNSB live outside the incorporated communities. The FNSB and City of North Pole populations have grown steadily over the last ten years at an average annual rate of 1.8 and 3.5%, respectively (Department of Labor and Workforce Development [DLWD], 2011a). As shown in Table 3-6, the population of both the borough and the city are primarily white, at 77% and 80% respectively (U.S. Census Bureau, 2011a).
### Table 3-6: 2010 Population by Race

<table>
<thead>
<tr>
<th>Race</th>
<th>Total Population</th>
<th>FNSB</th>
<th>North Pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>75,175</td>
<td>77%</td>
<td>1,686</td>
</tr>
<tr>
<td>Black/African American</td>
<td>4,423</td>
<td>5%</td>
<td>115</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>6,879</td>
<td>7%</td>
<td>71</td>
</tr>
<tr>
<td>Asian</td>
<td>2,591</td>
<td>3%</td>
<td>85</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>396</td>
<td>&lt;1%</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>1,446</td>
<td>2%</td>
<td>22</td>
</tr>
<tr>
<td>More than one race</td>
<td>6,671</td>
<td>7%</td>
<td>136</td>
</tr>
</tbody>
</table>

Note: Percentages do not add to 100% due to rounding.
Source: DLWD, 2011a

The FNSB contains both Fort Wainwright Army Base and Eielson Air Force Base and approximately 8% of the adult population of the borough is in military service. The civilian labor force was estimated at 48,706 in the 2005-2009 American Community Survey by the Census Bureau (U.S. Census Bureau, 2011b). Unemployment over that period was reported at almost 7%. Top employers in the FNSB are the University of Alaska, Fairbanks North Star School District, State of Alaska (excluding the University of Alaska), Banner Health System, and Wal-Mart (DLWD, 2011b). Other major employers include the FNSB, Tanana Chiefs Conference, Fairbanks Gold Mining, Inc., and Safeway. Educational, health care and social services account for almost 25% of employment in the borough.

Employment data for the City of North Pole is similar to the Borough. The civilian workforce is estimated at 1,150 with an unemployment rate of almost 11% and almost 10% of the population in military service. Construction and retail trade are major industries for the City. Currently, the rail corridor extends through downtown North Pole and bisects the North Pole community.

Income levels in the study area are consistent with statewide income levels. Incomes in the borough as a whole are slightly higher than those in the city (Table 3-7).

### Table 3-7: Per Capita and Median Household Income 2005-2009

<table>
<thead>
<tr>
<th></th>
<th>FNSB</th>
<th>North Pole</th>
<th>Alaska</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Capita Income</td>
<td>$28,373</td>
<td>$26,604</td>
<td>$29,382</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$65,121</td>
<td>$60,742</td>
<td>$64,635</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, American Community Survey, 2005-2009

Subsistence hunting may occur in the Tanana River Flats; however, ADF&G does not have any specific hunting or subsistence data for the project area. The City of North Pole is also unaware of any specific hunting or fishing activities within the project study area (Butler, 2011).

**Impacts and Mitigation**

Relocation of the rail line to the south under either build alternative is not expected to have any long-term effect on population, employment, subsistence/hunting access, or housing demand in the city or the borough. In the short-term, both build alternatives would result in a minor beneficial effect due to an increase in construction employment in the area and purchases of local goods and services during construction. Community cohesiveness would be enhanced with
elimination of train traffic through downtown North Pole and between the middle and high schools.

Under the No-Action Alternative, there would be no long-term economic, population, demographic, or housing impacts and short-term increases in construction-related employment would not occur. The Proposed Action benefit of reducing train traffic through and near downtown North Pole, residential areas and schools would not be realized under the No-Action Alternative.

3.3.2.1 Environmental Justice

Existing Conditions

2010 census tract data for the City of North Pole and FNSB were reviewed to determine whether any low income or minority populations exist within the study area. The study area falls into two census tracts, as shown in Table 3-8 below.

<table>
<thead>
<tr>
<th>Area</th>
<th>%White</th>
<th>%Minority</th>
<th>%Poverty</th>
<th>Median Household Income</th>
<th>Median Family Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>68</td>
<td>32</td>
<td>10</td>
<td>$64,635</td>
<td>$75,493</td>
</tr>
<tr>
<td>FNSB</td>
<td>77</td>
<td>23</td>
<td>8</td>
<td>$65,121</td>
<td>$76,601</td>
</tr>
<tr>
<td>City of North Pole</td>
<td>80</td>
<td>20</td>
<td>10</td>
<td>$60,742</td>
<td>$82,667</td>
</tr>
<tr>
<td>Census Tract 14</td>
<td>90</td>
<td>10</td>
<td>4</td>
<td>$77,647</td>
<td>$79,412</td>
</tr>
<tr>
<td>Census Tract 16</td>
<td>80</td>
<td>20</td>
<td>5</td>
<td>$71,694</td>
<td>$83,293</td>
</tr>
</tbody>
</table>

None of the data indicates a low income or minority population exists within the project area. In addition to reviewing this data, the City of North Pole was contacted to inquire about any known low income or minority populations. They indicated there is only one area in the City that is designated as low income. This area is along Snowman Lane, adjacent to the existing alignment (Butler, 2011).

Impacts and Mitigation

Based on the information above, it is not anticipated that the proposed project would have disproportionate adverse impacts on predominantly low income or minority populations. The low income population along Snowman Lane would benefit from the proposed project, due to less noise impacts from horn blows and railroad traffic, as well as enhanced pedestrian and vehicular safety from the elimination of at-grade road/rail crossings. No mitigation is necessary.

3.3.3 Transportation

Existing Conditions

Railroad

In 1914, Congress authorized construction of a railroad from Seward to Fairbanks, Alaska. The section of railroad that runs through the community of North Pole was originally constructed circa 1940, as part of the Eielson Branch, which connected Fairbanks to Ladd Field (now Fort
Wainwright). The railroad was extended in 1945 from Ladd Field to Eielson Air Force Base, originally known as MP 26. The Eielson Branch generally runs parallel to the Richardson Highway and extends through urban and rural commercial, residential, and military areas.

The primary freight being transported to and from Fairbanks via the Alaska Railroad include refined petroleum from the Flint Hills Refinery in North Pole, coal used for power generation by Fairbanks area municipal utilities and the military bases, and oil field supplies, such as heavy equipment and chemicals (Kittleson & Associates Inc., 2010). Three major customers are currently served by the ARRC in the North Pole/Fairbanks area: Flint Hills Resources North Pole Refinery, Eielson Air Force Base, and Fort Wainwright. The ARRC does not currently provide passenger service to and from the North Pole area, but it may add this service in the future. Existing rail operations in the North Pole area are shown in the Table 3-9.

<table>
<thead>
<tr>
<th>Rail Type</th>
<th>Freight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Days</td>
<td>7 days/week</td>
</tr>
<tr>
<td>Train Frequency</td>
<td>2-3 trains/day serving Flint Hills Refinery</td>
</tr>
<tr>
<td></td>
<td>4 trains/week to Eielson Air Force Base</td>
</tr>
<tr>
<td>Train Speed</td>
<td>15 mph maximum (up to G17.55) and</td>
</tr>
<tr>
<td></td>
<td>10 mph maximum (beyond)</td>
</tr>
</tbody>
</table>

**Major Roads and Highways**

The major roads and highways in the project area include the Richardson Highway, Old Richardson Highway, and North Santa Claus Lane (refer to Figure 2-1). Commuters between Fairbanks and North Pole generally use the Richardson Highway, which includes one existing at-grade railroad crossing within the project area. Existing (2008) and projected future (2035) average daily traffic (ADT) counts for these roadways are listed below in Table 3-10.

<table>
<thead>
<tr>
<th>Road Name</th>
<th>2008 ADT Volume</th>
<th>2035 ADT Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richardson Highway</td>
<td>10,800-23,400</td>
<td>10,800-26,800</td>
</tr>
<tr>
<td>Old Richardson Highway</td>
<td>2,300</td>
<td>Not included in 2035 projections</td>
</tr>
<tr>
<td>North Santa Claus Lane</td>
<td>4,200-9,600</td>
<td>2,900-10,800</td>
</tr>
</tbody>
</table>

Source: Kittleson & Associates Inc., 2010

There are fourteen existing at-grade road crossings along the railroad alignment within the project area, including the Peridot crossing of the Richardson Highway. The current FMATS Metropolitan Transportation Plan includes the North Pole Road/Rail Crossing Reduction Project as one of its Short Range (2011-15) Priority Projects, due to the benefit of eliminating the at-grade road crossings in the City of North Pole and the Peridot Crossing of the Richardson Highway (Kittleson & Associates Inc., 2010).

**Air Transportation**

There is an existing private airstrip near H&H Road (Figure 1-2). The airstrip was permitted to the existing landowner during land acquisition for the Levee in the 1974. FNSB has stated that ARRC would not need to provide access to the airstrip if it is interrupted due to construction of
proposed new rail alignment (Costello, 2011). Permit conditions allow FNSB to terminate the permit, should land be required for Borough purposes. A copy of the permit is in Appendix H.

Bradley Sky Ranch Airport, a privately owned facility available for public use, is located between Old Richardson Highway and Champion Avenue (Figure 1-2) and closely abuts Alternative C (Proposed Action).

**Impacts and Mitigation**

Proposed rail operations in the North Pole area for both Alternatives A and C (Proposed Action), would be the same as specified in Table 3-9 for existing operations with regard to operating days and train frequency. Train design speed would be up to 60 mph with the Richardson Highway grade separation and up to 25 mph with the temporary at-grade crossing.

Both build alternatives would maintain access to the Tanana River Flood Control Levee and the Flood Control Levee Trail. Under both alternatives, one access to the Levee from the Richardson Highway would be eliminated, but an alternative access is available approximately 1,200 feet to the west. If Alternative A is phased, this access may remain open until the grade-separated crossing is constructed. Crossings of the realigned track would be provided at key locations to ensure continued access for FNSB and USACE to the Levee (for inspections and maintenance), and crossings provided for continued access to the recreational trail would be grade-separated whenever possible.

Construction of both alternatives may need to be phased due to funding constraints or a phased funding approach for the entire project. For both alternatives, phased construction could include building the rail realignment with a temporary at-grade road/rail crossing of the Richardson Highway prior to grade separating that crossing. The key differences between the alternatives are described below.

- **Alternative A** – The skew angle of the temporary at-grade crossing is approximately 59 degrees compared to 32 degrees for the existing crossing. The crossing would not be on the same alignment as the proposed future mainline track alignment in order to provide enough room for construction of the rail-over-road grade separation.

- **Alternative C** - The skew angle of the temporary at-grade crossing is approximately 31 degrees compared to 32 degrees for the existing crossing. The crossing would be located along the proposed future mainline track alignment. The future grade-separated road-over-rail crossing could be built over and around the track if this phasing approach was chosen during final design. This would reduce the need for track removal once the road-over-rail grade separation was constructed.

For both alternatives, the proposed at-grade crossing location is on a more tangent stretch of Richardson Highway, which also provides improved safety conditions relative to the existing crossing location. Crossing signals, gates, and acceleration/deceleration lanes would be installed with the temporary crossing. Table 3-11 summarizes the potential worst-case construction sequencing based on funding availability for use in evaluating potential impacts.

The project would have both beneficial and adverse transportation impacts as summarized in Table 3-12. With regard to beneficial impacts, under both build alternatives, multiple at-grade road/rail crossings in the City of North Pole would be eliminated, including the heavily used
Peridot crossing of the Richardson Highway, and train traffic would be substantially reduced at crossings that would remain open along the spur track (refer to Table 3-13). Traffic conflicts would be greatly reduced, as vehicles would no longer need to wait for trains to pass before proceeding to their destination. Transportation safety would also be enhanced by reducing the potential for train-vehicle collisions and for delays to emergency response vehicles while train operations move through or service existing rail customers in North Pole. The greatest safety enhancement would be associated with the new grade-separated crossing of the Richardson Highway and removal of the existing at-grade crossing. Another significant improvement to safety would be the elimination of train traffic through downtown North Pole and between the middle and high schools, and downtown North Pole. Finally, relocating the track to the Levee corridor would provide beneficial impacts to railroad operating efficiency due to: 1) reduced travel times through the corridor; and 2) the new access to the Flint Hills Refinery from the realigned track to the south and additional support tracks parallel to the new alignment to provide necessary switching and storage of cars for the refinery.

The adverse effects are largely associated with construction, and would vary, depending on construction phasing. The additional impacts due to at-grade temporary crossings are not desired, but may be necessary due to construction phasing and project funding.

Under both build alternatives, temporary adverse impacts would occur during removal of tracks, crossing panels and other equipment at the other eliminated crossings. Temporary construction-related transportation impacts are identified below. Temporary impacts would be minimized with development and implementation of a traffic control plan.

- Reduced traffic speeds during construction
- Reduced traffic speeds during temporary operation (dependent upon recommendation during final design and coordination between appropriate transportation agencies)
- Reduced number of traffic lanes during construction
- Unpaved highway surfaces during construction
- Detours for public access to recreational and business areas
- Detours for private access to private property

Impacts to Richardson Highway users would occur during construction of the temporary at-grade crossing and removal of the existing crossing. Impacts would be relatively greater to road users for Alternative A, due to the need to remove the temporary crossing once the rail-over-road grade-separated crossing is completed. These impacts would be minimized with development and implementation of a traffic control plan during construction.
## Table 3-11: Construction Sequencing and Phasing

### Construction Sequencing – If Fully Funded

<table>
<thead>
<tr>
<th>Step</th>
<th>Alternative A</th>
<th>Alternative C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Relocate affected utilities and construct rail-over-road grade separation (Rail Bridge)</td>
<td>Relocate affected utilities and construct road-over-rail grade separation (Road Bridge)</td>
</tr>
<tr>
<td>Step 2</td>
<td>Construct new frontage and property access roads</td>
<td>Construct new frontage and property access roads</td>
</tr>
<tr>
<td>Step 3</td>
<td>Construct proposed mainline track grade, trail corridor, trail/maintenance crossings and appropriate Levee earthwork</td>
<td>Construct proposed mainline track grade and trail/maintenance crossings</td>
</tr>
<tr>
<td>Step 4</td>
<td>Construct and re-establish appropriate Levee infrastructure</td>
<td></td>
</tr>
<tr>
<td>Step 5</td>
<td>Construct realigned mainline track</td>
<td>Construct realigned mainline track</td>
</tr>
<tr>
<td>Step 6</td>
<td>Cut train traffic onto proposed mainline</td>
<td>Cut train traffic onto proposed mainline</td>
</tr>
<tr>
<td>Step 7</td>
<td>Remove existing at-grade road/rail crossings and track where applicable including the ‘Peridot Crossing’ of the Richardson Highway</td>
<td>Remove existing at-grade road/rail crossings and track where applicable including the ‘Peridot Crossing’ of the Richardson Highway</td>
</tr>
</tbody>
</table>

### Construction Sequencing – Phased Funding

<table>
<thead>
<tr>
<th>Phase</th>
<th>Step</th>
<th>Alternative A</th>
<th>Alternative C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>Step 1</td>
<td>Relocate affected utilities as necessary and construct relocated at-grade temporary road/rail crossing including gates, signals, acceleration/deceleration lanes, and site triangles (near location of proposed mainline track for Alt. A)</td>
<td>Relocate affected utilities as necessary and construct relocated at-grade temporary road/rail crossing including gates, signals, acceleration/deceleration lanes, and site triangles (at location of proposed mainline track for Alt. C)</td>
</tr>
<tr>
<td></td>
<td>Step 2</td>
<td>Construct new frontage and property access roads</td>
<td>Construct new frontage and property access roads</td>
</tr>
<tr>
<td></td>
<td>Step 3</td>
<td>Construct proposed mainline track grade, trail corridor, trail/maintenance crossings and appropriate Levee earthwork</td>
<td>Construct proposed mainline track grade and trail/maintenance crossings</td>
</tr>
<tr>
<td></td>
<td>Step 4</td>
<td>Construct and re-establish appropriate Levee infrastructure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Step 5</td>
<td>Construct proposed mainline track</td>
<td>Construct proposed mainline track</td>
</tr>
<tr>
<td></td>
<td>Step 6</td>
<td>Cut train traffic onto realigned mainline with at-grade temporary crossing of Richardson Highway</td>
<td>Cut train traffic onto realigned mainline with at-grade temporary crossing of Richardson Highway</td>
</tr>
<tr>
<td></td>
<td>Step 7</td>
<td>Remove existing at-grade road/rail crossings and track where applicable including the ‘Peridot Crossing’ of the Richardson Highway</td>
<td>Remove existing at-grade road/rail crossings and track where applicable including the ‘Peridot Crossing’ of the Richardson Highway</td>
</tr>
<tr>
<td>Phase II</td>
<td>Step 8</td>
<td>Relocate affected utilities and construct rail-over-road grade separation (Rail Bridge), and cut train traffic onto realigned mainline</td>
<td>Relocate affected utilities and construct road-over-rail grade separation (Road Bridge)</td>
</tr>
<tr>
<td></td>
<td>Step 9</td>
<td>Remove at-grade temporary crossing at Richardson Highway (including track, gates, crossing panels, and signals) and repave highway</td>
<td>Remove at-grade temporary crossing at Richardson Highway (including gates, signals, crossing panels, and paved road)</td>
</tr>
</tbody>
</table>

1. Utility relocations would be coordinated with utility companies and ADOT&PF as necessary during final design. Affected utilities would be relocated at one time, regardless of construction phasing.
### Table 3-12: Transportation Considerations/Impacts

<table>
<thead>
<tr>
<th></th>
<th>Alternative A</th>
<th>Alternative C (Proposed Alternative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of At-Grade Crossings</td>
<td>10 at-grade crossings eliminated, and 3 others would have significantly reduced train traffic due to their location on a rail spur instead of the main line.</td>
<td>Same, except that 9 at-grade crossings would be eliminated.</td>
</tr>
<tr>
<td>Safety/ Traffic Conflicts</td>
<td>Enhanced – elimination of at-grade crossings greatly reduces potential for train-vehicle collisions and delays to emergency response vehicles. Pedestrian safety in North Pole also enhanced. Greatly reduced traffic conflicts, as vehicles would no longer need to wait for trains to pass before proceeding to their destination. Elimination of train traffic through downtown North Pole and between the middle and high schools.</td>
<td>Same as Alternative A</td>
</tr>
<tr>
<td>Richardson Highway Crossing (Relocated)</td>
<td>Rail-over-road grade-separated crossing approximately 2 miles west of existing at-grade crossing.</td>
<td>Road-over-rail grade-separated crossing approximately 2 miles west of existing at-grade crossing.</td>
</tr>
<tr>
<td>Existing Richardson Hwy Crossing at MP 12 (Peridot), other eliminated crossings</td>
<td>At-grade crossings would be removed, including rails, crossing panels, and other equipment. Roads would be repaved.</td>
<td>Same as Alternative A</td>
</tr>
<tr>
<td>Phased Construction - Temporary At-grade Crossing of Richardson Highway</td>
<td>May be needed due to funding constraints – see Table 3-11. Richardson Highway Temporary crossing would be removed once grade-separated crossing completed. Additional traffic disruption as compared to Alt. C.</td>
<td>Same as Alternative A</td>
</tr>
<tr>
<td>Richardson Highway Frontage Road</td>
<td>Modified – relocated Richardson Hwy crossing would block existing access to frontage road southeast of crossing. Most of frontage road would remain in place. It would be terminated with a cul-de-sac or the access would be relocated eastward along the Richardson Hwy. Access to homes and businesses would be maintained.</td>
<td>Same as Alternative A, except that the frontage road would be terminated with a cul-de-sac.</td>
</tr>
<tr>
<td>Levee access from Richardson Hwy</td>
<td>Eliminate access to levee via the Frontage Rd. Alternative access available.</td>
<td>Same as Alternative A</td>
</tr>
<tr>
<td>Green Construction Access and Rentals Street Area</td>
<td>Existing Green Construction access would be relocated to the west from Rentals Street, since the existing access would be blocked by the embankment for the Richardson Highway crossing approach. The grade of the crossing would be raised. See Figure 2-2.</td>
<td>No change in existing access.</td>
</tr>
<tr>
<td>Dyke Road/Old Richardson Highway area</td>
<td>Realign approximately 0.5 miles of the Old Richardson Highway to the north to eliminate the existing public at-grade crossing, and construct the rail embankment on top of existing road (Fig. 2-2)</td>
<td>Same as Alternative A</td>
</tr>
<tr>
<td>Air Strips</td>
<td>No impacts to Bradley Sky Ranch Airport. Requires use of existing private airstrip near Hunts &amp; Huges Road (Figure 1-2) - FNSB would need to terminate the permit issued to the existing landowner.</td>
<td>Same. Closely abuts Bradley Sky Ranch Airport, but analysis confirmed project would not infringe on approach prism.</td>
</tr>
<tr>
<td>Railroad Operating Efficiency</td>
<td>Improved due to reduced travel times through the corridor and new access to Flint Hills Refinery from the realigned track to the south and additional support tracks to provide necessary switching and storage of cars for the refinery.</td>
<td>Same as Alternative A</td>
</tr>
</tbody>
</table>
Table 3-13: Proposed Road/Rail Crossing Reductions and Improvements
Alternatives A and C

<table>
<thead>
<tr>
<th>USDOT Crossing No.</th>
<th>Type</th>
<th>Classification</th>
<th>MP</th>
<th>Road Name</th>
<th>Alternative A</th>
<th>Alternative C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Crossing Status</td>
<td>Track</td>
</tr>
<tr>
<td>868447N</td>
<td>Public</td>
<td>At-Grade</td>
<td>G11.96</td>
<td>Rentals Street</td>
<td>Open</td>
<td>Main line/Spur</td>
</tr>
<tr>
<td>868448V</td>
<td>Private</td>
<td>At-Grade</td>
<td>G12.31</td>
<td>Green Construction</td>
<td>Eliminated</td>
<td>Main line/Spur</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Public</td>
<td>G12.7A</td>
<td>Richardson Highway</td>
<td>New</td>
<td>Main line</td>
</tr>
<tr>
<td>868449C</td>
<td>Public</td>
<td>At-Grade</td>
<td>G12.9A</td>
<td>Temporary Richardson</td>
<td>New</td>
<td>Main line</td>
</tr>
<tr>
<td>868450W</td>
<td>Private</td>
<td>At-Grade</td>
<td>G13.57</td>
<td>Club 11</td>
<td>Open</td>
<td>Spur, Reduced Traffic</td>
</tr>
<tr>
<td>868451D</td>
<td>Private</td>
<td>At-Grade</td>
<td>G14.01</td>
<td>UNNAMED/Alexander, William G.</td>
<td>Open</td>
<td>Spur, Reduced Traffic</td>
</tr>
<tr>
<td>868452S</td>
<td>Public</td>
<td>At-Grade</td>
<td>G14.73</td>
<td>Richardson Highway</td>
<td>Eliminated</td>
<td>Main line</td>
</tr>
<tr>
<td>869456M</td>
<td>Public</td>
<td>At-Grade</td>
<td>G15.79</td>
<td>Cross Way Road</td>
<td>Eliminated</td>
<td>Main line</td>
</tr>
<tr>
<td>868461J</td>
<td>Public</td>
<td>At-Grade</td>
<td>G16.3</td>
<td>5th Avenue</td>
<td>Eliminated</td>
<td>Main line</td>
</tr>
<tr>
<td>868463X</td>
<td>Public</td>
<td>At-Grade</td>
<td>G16.37</td>
<td>8th Avenue</td>
<td>Eliminated</td>
<td>Main line</td>
</tr>
<tr>
<td>910292L</td>
<td>Pedestrian</td>
<td>At-Grade</td>
<td>G16.38</td>
<td>Ped Trail</td>
<td>Eliminated</td>
<td>Main line</td>
</tr>
<tr>
<td>910289D</td>
<td>Public</td>
<td>At-Grade</td>
<td>G16.60</td>
<td>Flint Hills</td>
<td>Eliminated</td>
<td>Main line</td>
</tr>
<tr>
<td>868480N</td>
<td>Public</td>
<td>At-Grade</td>
<td>G17.55</td>
<td>Laurance Road</td>
<td>Eliminated</td>
<td>Main line</td>
</tr>
<tr>
<td>868482C</td>
<td>Public</td>
<td>At-Grade</td>
<td>G18.37</td>
<td>Armistice Street</td>
<td>Eliminated</td>
<td>Main line</td>
</tr>
<tr>
<td>868484R</td>
<td>Public</td>
<td>At-Grade</td>
<td>G19.03</td>
<td>Dyke Road</td>
<td>Eliminated</td>
<td>Main line</td>
</tr>
</tbody>
</table>

Notes:
1. For more information on proposed private at-grade crossings for FNSB access to the Levee see Section 3.1.4, Flood Hazards and Floodplain Management.
2. Crossing status “Eliminated” means that rails, ties, crossing panels, and signal equipment would be removed.
Both the temporary at-grade crossing and proposed grade-separated crossing at the Richardson Highway would block existing access to the frontage road southeast of the crossing. The project would leave most of the frontage road in place, and under Alternative A, would either terminate the road with a cul-de-sac or relocate the west access to the frontage road eastward along the Richardson Highway (Figure 3-8). Under Alternative C, the frontage road would be terminated with a cul-de-sac (Figure 3-9). These frontage road options would allow continued access to all developed properties remaining along the frontage road, although temporary construction-related impact would occur (e.g., temporary access detours). Properties where access would not be feasible are currently undeveloped and would need to be acquired in order to build the grade-separated crossing (see Section 3.3.1; Appendix D).

Under both build alternatives, temporary construction impacts would also occur at the east end of the project near Dyke Road, where approximately 0.5 miles of the Old Richardson Highway would be realigned to the north to eliminate the existing public at-grade crossing. A portion of the rail embankment would be constructed on top of the existing road (Figure 2-2).

Additional adverse impacts specific to Alternative A are associated with the large embankment needed for the railroad approach to the Richardson Highway crossing and impacts on other crossings. Neither an underpass nor an overcrossing is possible at the Green Construction access or the Rentals Street. Therefore, the existing Green Construction access would be relocated, and the at-grade crossing for Rentals Street would require a grade raise (see Figure 2-4).

The No-Action Alternative would not meet the project purpose and need. Under this alternative, the current alignment would be maintained, with numerous at-grade road/rail crossings in the City of North Pole, including the Peridot Crossing of the Richardson Highway. Traffic would continue to be delayed during train operations at these crossings.

The following measures would be implemented to mitigate impacts:

- Coordinate final design of the Richardson Highway crossings (temporary at-grade and grade-separated crossings) and the frontage road with ADOT&PF. Acceleration/deceleration lanes would be 12-feet wide, and the vertical clearance for the rail-over-road grade-separated crossing (Alternative A) would be 18-feet.

- Consider establishing a diagnostic team to review the relocated Richardson Highway crossing in accordance with ARRC’s Policy on Railroad/Highway Crossings.

- Prepare traffic control plan prior to initiating construction to avoid and minimize road closures and lane restrictions to the extent practical.

- Maintain access to businesses and residences. Provide proper signage and notice of road or lane closures to travelers.

- Notify road users of temporary road closures and other construction-related activities, so alternate routes could be planned. Provide proper signage and notice of lane closures and detours. Display signs providing the name, address, and telephone number of a contact person to assist the public in obtaining immediate responses to questions and concerns about project activities.
• Coordinate with the FNSB and USACE to ensure adequate access for maintenance of the Levee is provided during project construction. Also, coordinate with ADOT&PF regarding the levee access from the Richardson Highway.

3.3.4 Noise and Vibration

A noise and vibration assessment of potential impacts was conducted in accordance with the FRA’s High Speed Ground Transportation Noise and Vibration Assessment guidelines (FRA, 2005), and Federal Transit Administration’s (FTA) Transit Noise and Vibration Impact Assessment guidelines (FTA, 2006). These two documents are equivalent with respect to the assessment and evaluation of noise and vibration impacts. Assessment of Noise Environments Around Railroad Operations, Report WCR 73-5, was used for freight rail noise source levels (Wyle, 1973). The original Noise and Vibration Technical Report that was completed in 2006 for the larger Eielson Branch Realignment Project concluded that no impacts are likely to occur under the proposed project. One residence located on H&H Road in North Pole was projected to have a Severe Impact from the proposed rail realignment; however, since the ARRC plans to purchase the entire property for ROW, the Severe Impact would be avoided (URS Corporation, 2006a). This report includes an explanation of acoustic terminology, methods used in the analysis, and conclusions made in 2006.

The 2006 Technical Report remains valid, but a supplemental report was prepared in 2011 (Appendix G) to address new noise sensitive land uses that have been developed adjacent to the proposed ARRC ROW in the project corridor since the 2006 analysis was completed. Some new residential developments have been expanded near the project area. This supplemental report also addresses new trail and maintenance crossings that have been added to the project plans.

3.3.4.1 Noise

Existing Conditions

Aside from noise created by the trains, existing conditions along the corridor are dominated by typical urban and rural land use activities, such as traffic, aircraft, wind and rustling leaves, and domestic animals including barking dogs. Currently, there are several at-grade road/rail crossings, at which the FRA requires that the train’s audible warning device produce a sound ranging from 96 to 110 A-weighted decibels (dBA) audible no less than 100 feet in front of the train. The train horn produces the loudest momentary noise event associated with railroad operations, thereby making it a major source of frequent community complaints. The primary goal of the proposed project is to reduce the number of at-grade crossings, which would lead to a reduction in the frequency of train horn use.

The FRA/FTA methodology prescribes the use of the Day-Night Average Sound Level descriptor (L_{dn}) in units of dBA to evaluate environmental noise effects over the long term (i.e., 24 hours). Equivalent Noise Level (L_{eq}) descriptor is typically specified for the short term (i.e., 1 hour or increments thereof). L_{dn} is the same as a 24-hour L_{eq}, except that noise occurring during the nighttime hours (10 p.m. to 6:59 a.m.) is weighted or penalized by 10 dBA.

Based on long-term (24-hour) measurements, the existing ambient noise levels range from 50.9 to 59 dBA L_{dn} (equivalent to 48.6 to 58 dBA L_{eq} [24-hour]). Short-term (20 minutes to 1 hour) measurements were taken at locations along the proposed project route where ambient noise
levels (including ambient with train) ranged from 45 to 72 dBA L\text{eq}. From this point forward, the dBA descriptor reported is L\text{dn}.

**Impacts and Mitigation**

The assessment of noise impacts is based on comparison of existing ambient noise and projected future noise exposure (under the proposed project) to established noise impact criteria for passenger rail projects. Noise levels in the area of the existing alignment would be substantially reduced, while noise levels in the area of proposed realignment, near the Levee, would increase.

The FRA uses three degrees of impact - No Impact, Impact, and Severe Impact, the latter of which complies with the NEPA definition of significant adverse impact. The 2006 Noise and Vibration Technical Report concluded that noise categories found within the 750-foot screening distance for receptors are Category 2 (residential areas) and Category 3 (North Pole High School and North Pole Middle School).

Operational noise levels were calculated at the noise sensitive receivers adjacent to the Alternative A and C alignments. The results are provided in Appendix G, Table 3-2 of the 2011 report, which also summarizes pertinent results from the October 2006 study. The results show that there would be no project–related impacts in the North Pole area. The projected noise level at Site LT-3 would have resulted in a Moderate impact to the receptor, but since this property would be acquired by as part of the project, the net result would be no impact. Therefore, operational noise associated with both Alternative A and Alternative C (Proposed Action) would result in No Impact.

Both Alternatives A and C (Proposed Action) would result in a substantial beneficial impact on more noise-sensitive receivers than those that would be adversely impacted. The residential receptors in the vicinity of the existing at-grade crossings that would be eliminated by the Proposed Action would experience less noise impacts.

Because there are no Severe Impacts to receptors from noise, mitigation measures for the project are not required. ARRC would work with its construction contractor(s) to minimize, to the extent practicable, construction related noise disturbances near residential areas. Construction and maintenance vehicles shall be in good working order with properly functioning mufflers. Additional specific mitigation measures, if necessary, would be determined during the final engineering and design phase.

Under the No-Action Alternative, the existing operational noise would not change.

### 3.3.4.2 Vibration

**Existing Conditions**

The FRA/FTA impact criterion of 80 velocity decibels (VdB) for Category 2 land uses (includes residential) and infrequent events (<70/day) is currently not exceeded at any of the representative vibration-sensitive receptor locations that were analyzed for vibration.
Impacts and Mitigation

According to the 2006 analysis, under either build alternative, vibration levels from rail activities at seven of the thirteen representative locations would either be lower than existing conditions (because of an increase in distance between receptor and rail alignment) or produce an imperceptible change (because the source-receptor distances are large in either case). At six of the thirteen representative locations, modeling indicated that the proposed rail realignments would result in slightly higher levels of vibration at some locations (generally due to the project’s higher train speeds), but the 80 VdB criterion would not be exceeded at any of the representative vibration-sensitive receptor locations under any of the alternatives. Thus, neither Alternatives A nor C are anticipated to result in adverse vibration effects.

The 2011 Supplemental Analysis confirmed this finding. The nearest vibration-sensitive property would be at Site ST-1, which would be approximately 327 feet from the Alternative C (Proposed Action) alignment. At this distance, the projected vibration level would be approximately 71 VdB, which is below the threshold of perceptibility of 80 VdB when there are less than thirty events per day. There would be no operational vibration impacts associated with this project for either build alternative. The results of the vibration impact analysis are presented in the reports in Appendix G.

Under the No-Action Alternative, the existing operational vibrations would not change.

3.3.5 Aesthetic and Design Quality Impacts

Existing Conditions

The City of North Pole lies in the low elevation Tanana Valley, just north of the Tanana River. North Pole is a small community with commercial enterprises, elementary, middle, and high schools, and a moderate tourism industry. Visitation is fueled by the City’s embrace of a Christmas theme. The existing rail corridor passes through the commercial downtown of North Pole, creating periodic and temporary visual disturbance.

The existing Levee corridor, through which the railroad is proposed to be realigned, has been previously disturbed by construction of the Levee as well as various utilities, including overhead power lines. The corridor supports a recreational trail along the landward side of the Levee that passes through wetland and upland habitats with vegetative canopies ranging from low and medium-height shrubs to tall forested areas.

Impacts and Mitigation

Visual impacts can occur when landscape changes are apparent to viewers from homes, travel routes, and/or recreational areas. Under both build alternatives, the existing rail alignment would be relocated outside the City of North Pole, which would have an overall beneficial impact on the aesthetics of the community by removing the periodic and temporary visual disturbance along the existing rail corridor through North Pole. However, there may be a minor increase in impact on undeveloped areas along the Levee corridor and recreational users of the area. These impacts are not anticipated to be substantial, due to the relatively low number of anticipated daily operations along the corridor.
Alternative A would result in the relocation of the Tanana River Flood Control Levee Trail to the landward side of the Levee at natural grade, thereby reducing the elevation of the trail slightly, which may have a slight impact on the views along the trail. Alternative C (Proposed Action) would largely maintain the Levee Trail in its current location alongside the Levee, thereby maintaining the broader landscape views.

Short-term impacts under both alternatives would result from the placement, operation, and storage of equipment and materials during the construction phases of the project.

Under the No-Action Alternative, realignment would not occur, landscape views would not change from current conditions, and the aesthetic impacts of periodic trains passing through North Pole would continue.

3.3.6 Historic and Archaeological Sites

Existing Conditions

Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470) requires projects involving federal participation to take into account potential effects on any properties listed, or eligible for listing, on the National Register of Historic Places. Federal regulations for implementing Section 106 are contained in 36 CFR 800, Protection of Historic Resources.

The principal concern for cultural resources is the loss or degradation of prehistoric or historic sites, either through direct impacts during construction or indirect impacts due to changes in public accessibility. Cultural resources can be affected by actions that alter the attributes that may qualify resources for inclusion in the National Register of Historic Places.

An archeological survey was conducted along a 500-foot-wide corridor of the proposed rail alignments for the Eielson Branch Realignment, of which the North Pole project was originally a component. Literature reviews and field surveys completed as part of the larger Eielson archeological investigation did not result in the identification of any archeological or historic sites along the Tanana River Levee corridor (URS Corporation, 2006b).

Based on consultation with the SHPO, a reconnaissance-level inventory and analysis of the built environment in the North Pole Central Business District was completed to determine if a historic district exists within the North Pole limits, and if the existing rail line is a contributing factor to any such district. Eleven buildings within the area of potential effect were documented and assessed for historic potential. Four of the eleven buildings assessed were found to meet the historic period criteria and retain sufficient integrity to be considered contributing elements to a historic district. However, the spatial concentration of these historic resources is insufficient to support a historic district in North Pole (SWCA Environmental Consultants, 2011).

Impacts and Mitigation

No historic or archaeological sites or features were identified within Area of Potential Effect (the alternative alignment corridors). Based on review of the cultural resource reports, the FRA determined that no historic properties would be affected by either build alternative. The Alaska SHPO concurred with this finding on August 4, 2011. Section 106 consultation documents are included in Appendix H.
There are no federally recognized tribes in the project area. Letters dated October 21, 2005, were sent by ARRC to other Alaska Native entities in the area, the Tanana Chiefs Conference and Doyon Limited, to solicit comments and concerns regarding the proposed project and potential impacts to cultural resources. Additional letters were sent to these parties by FRA on May 20, 2011. No responses were received.

Should construction activities unearth any archaeological or cultural resources, construction would be halted in the immediate area, until the SHPO is notified, the significance of the find is evaluated, and an appropriate course of action is identified.

Under the No-Action Alternative, realignment would not occur, and there would be no effects to cultural resources.

### 3.3.7 Recreation and Section 4(f)/Section 6(f) Properties

**Existing Conditions**

The FNSB Comprehensive Recreational Trail Plan identifies the Flood Control Levee Trail, a multi-purpose recreational trail in the project corridor, and indicates the trail receives a great deal of use for hunting and recreation, including winter use. The precise location of the trail within the Levee corridor is undefined, but based on input from the FNSB, it is on the stability berm inside the Levee on the landward side. According to the FNSB, the top of the Levee has not been designated for recreational use or use by motorized vehicles.

The Flood Control Levee Trail is the primary option to connect portions of the proposed 100-Mile Loop Trail, the cities of Fairbanks and North Pole, and is used to access the Tanana River floodplain via unmapped informal trails in the study area. These trails connect to the Levee Trail and provide access for hunters, fishermen, and other recreational users of the Tanana River. The ADF&G reports moderate use of the area between the Levee and the river for trapping and bow hunting (Durst, 2011). Proposed trail access/crossings are shown on Figure 3-10.

Relative to Section 4(f), there are no designated federal or state parks, wildlife refuges or historic sites located within the study area. FRA sent a letter to FNSB on July 13, 2011 requesting concurrence or input relative to the major purpose and function of the Tanana River Flood Control Levee. FNSB responded on August 18, 2011 with a letter of concurrence that the primary purpose of the Levee is for flood control with a secondary use as a recreational trail. Therefore, the Flood Control Levee Trail is not considered a Section 4(f) resource.

Section 6(f) of the Land and Water Conservation Fund Act of 1965 prevents the acquisition or development of property that has been acquired or developed with Land and Water Conservation Fund Act of 1965 funds. There are no Section 6(f) properties within the study area.

**Impacts and Mitigation**

Under both build alternatives, impacts to the Flood Control Levee Trail and recreational use would be mitigated as part of the project, including access to the Tanana River and informal trails on the riverward side of the Levee. Alternative A would realign the railroad embankment directly on top of the Flood Control Levee and associated trail, directly affecting the trail. A new trail corridor would be established on the landward side of the Levee, adjacent to and outside of
the proposed ARRC ROW. Crossings of the Levee/rail would be constructed for trail users at key locations to provide continued access to the Tanana River area south of the Levee. Existing informal access trails on the landward side of the Levee would be consolidated to help ensure the safety of trail users.

Alternative C (Proposed Action) would realign the track on the landward side of the Levee, and would not directly affect the Levee Trail. Crossings over or under the track to access the Levee Trail and other recreational areas south to the rail corridor would be constructed for trail users at key locations, and access to existing informal trails on the landward side of the Levee would be consolidated to help ensure the safety of trail users.

During construction, some access restrictions to the existing trail and the Levee area could occur for safety purposes. Appropriate notification would be made to the FNSB and users, and detours would be well marked. Signs providing the name, address, and telephone number of a contact person would be displayed on-site to assist recreationalists in obtaining immediate responses to questions and concerns about project activities.

When possible, the trail crossings of the track, which would mitigate impacts to recreational users, would be grade-separated. Table 3-14 identifies the locations and anticipated crossing type for the proposed trail crossings. Exhibits 6 through 9 provide typical designs for the crossing structures that that would be used for grade-separated crossing (overpass and underpass).

<table>
<thead>
<tr>
<th>Table 3-14: Proposed Trail Crossings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>Richardson Crossing MP G12.7</td>
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<tr>
<td>Levee Crossing MP G14.2</td>
</tr>
<tr>
<td>NPHS MP G15.6</td>
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</tbody>
</table>
Exhibit 6: Trail Underpass at Richardson Highway Crossing (Alternative A)

Exhibit 7: Trail Overpass at Richardson Highway Crossing (Alternative C-Proposed Action)
3.3.8 Contaminated Sites

Existing Conditions

DOWL HKM reviewed ADEC’s contaminated sites database, an Environmental FirstSearch Database Report for the City of North Pole, and an Initial Site Assessment (completed in 2006 for the Eielson Branch Realignment Project, which included the majority of the project area being analyzed for the proposed North Pole Road/Rail Crossing Reduction Project) to determine whether contaminated sites existing within the project area. The corridor analyzed for contaminated sites includes a 500-foot corridor around proposed Alternatives A and C (Proposed Action) and the existing railroad tracks through North Pole.

There are fourteen known contaminated sites located within the 500-foot corridor analyzed for the project (Figure 3-11). Two additional known contaminated sites are located just outside the 500-foot corridor and are included in the analysis because visual observations revealed the presence of recognized environmental concerns. Details about each known contaminated site are included in a Contaminated Sites Review Memo in Appendix I. The primary contaminant of concern identified in association with known contaminated sites is petroleum hydrocarbons. Additional contaminants have been identified in the study area and include solvents, heavy metals, and polychlorinated biphenyls.
Due to their proximity to the proposed rail realignment and the presence of surficial contamination, the primary sites of concern within the study area include Parcel No. 344117 (NP-18), Parcel No. 183164 & 183172 (NP-22), Parcel No. 183334 (NP-23), and the Fort Wainwright UXO area. Detailed information regarding each site is located in Appendix I. Existing conditions of each site were documented in the summer of 2011 during the fieldwork completed for the wetlands delineation. NP-18, NP-22, and NP-23 present potential environmental concerns associated with the presence of poor waste management practices (scattered heavy equipment, storage tanks, drums) and undocumented spills. The UXO area on Fort Wainwright presents risks associated with abandoned vehicles, car batteries, and buried UXO left by the military.

Impacts and Mitigation

Both build alternatives would result in partial or whole acquisition of properties affected by the contaminated sites noted above. In addition, both build alternatives would require the acquisition of ROW and construction within the Fort Wainwright UXO boundary.

Further investigation into possible contamination and presence of UXO may be conducted prior to property acquisition. Construction through the UXO area would require coordination with the U.S. Army, USEPA, and ADEC. Short-term hazardous materials construction impacts (e.g., fuel spillage from equipment) would be limited through ARRC contracting requirements, management plans, and BMPs that would include implementation spill-prevention measures and hazardous materials handling and fuel management practices. Spill clean-up equipment (e.g., oil-absorbent pads) would be available onsite during construction. Any contamination encountered during construction would be addressed in accordance with applicable state and federal regulations. To the extent the project results in cleanup of any contamination, a beneficial impact would occur.

The No-Action Alternative would not require the acquisition of land containing the presence of environmental concerns nor would the No-Action Alternative cause any disturbance to existing contaminated sites.

3.3.9 Public Safety

Existing Conditions

The existing rail corridor contains 14 at-grade road crossings between ARRC MPs G12 and G20, including a four-lane road/rail crossing of the Richardson Highway MP 12. The existing track passes between two schools - the North Pole High and Middle schools that are accessible from the Old Richardson Highway. Public activity near the schools and frequenting of businesses in
North Pole present increased risk each day, as students and the general public use the existing at-grade crossings. Public safety is compromised by the potential for delays to emergency response vehicles while train operations move through North Pole. The Levee is currently used by authorized and unauthorized users, which is a public safety concern.

**Impacts and Mitigation**

Under both build alternatives, multiple at-grade crossings in the City of North Pole would be eliminated, and the heavily used road/rail crossing of the Richardson Highway MP 12 (Peridot) would be replaced with a grade-separated crossing. Alternative A would eliminate ten at-grade crossings, and Alternative C (Proposed Action) would eliminate nine. Three additional crossings would have significantly reduced train traffic due to their location on a rail spur instead of the main line. The rails, crossing panels, and signal/crossing equipment associated with the existing Richardson Highway crossing and other eliminated crossings would be removed.

This reduction in the number of at-grade crossings would decrease inherent safety concerns associated with crossings, including the potential for train and vehicular/pedestrian traffic accidents. Safety would also be enhanced by reducing the potential for delays to emergency response vehicles while train operations move through or service existing rail customers in North Pole.

The No-Action Alternative would maintain existing safety concerns, and would not improve public safety by decreasing the number of dangerous crossings.

**3.4 Cumulative Effects**

3.4.1 **Past, Present, and Reasonably Foreseeable Actions in Project Area**

In general, past, present and reasonably foreseeable actions encompass planning efforts and improvements for the railroad, highway, and recreational facilities. Specific past, present, and reasonably foreseeable projects within the temporal and geographic boundaries of the proposed project include the following:

- **Chena River Flood Control Project.** The Flood Control Project is situated on approximately 20,000 acres and consists of the Moose Creek Dam and Floodway, the Moose Creek Acres Berm, the Tanana River Flood Control Levee, and drainage channels within the protected area. The project was constructed to protect Fairbanks and adjacent areas, including Fort Wainwright, from recurring flood damage from the Chena and Tanana Rivers. Construction of the project began in 1973 and was completed in the mid-1990s (USACE, 2011b). The Chena River Flood Control Project is associated with the floodplain areas affected by the proposed realignment project.

- **Northern Rail Extension.** ARRC proposes to extend its mainline track from the Moose Creek/Richardson Highway crossing near Eielson Air Force Base to the Delta Junction area, a distance of approximately 80 miles. The purpose is to connect areas of Interior Alaska by rail, meeting a growing need for safe, reliable, and efficient year-round transportation for residents, businesses, and various commercial shippers. The EIS has been completed and the ARRC is currently in the permitting phase for the bridge crossing the Tanana River. The Northern Rail Extension (NRE) Project would increase rail traffic
(an average of five trains per day are anticipated) and potentially the associated noise and air quality impacts in the proposed realignment project area.

- **ADOT&PF Richardson Highway Crossing Projects.** The ADOT&PF is planning or has recently completed several crossing projects along the Richardson Highway, as listed below. The latter three projects are planned, while the first project is complete.
  
  - **Richardson Highway North Pole Interchange.** Construct an interchange on the Richardson Highway at MP 348 (completed in 2008).
  
  - **Richardson Highway MP 345 Moose Creek Overpass.** Construct a grade-separated railroad crossing on the Richardson Highway at MP 345 (between North Pole and Eielson) to support construction the Alaska Natural Gas Pipeline.
  
  - **Richardson Highway MP 353-357 Access Improvements.** Improve existing access control between Rozak Road and Wescott Garden Lane. The project will reduce access points through consolidation and improve and expand frontage roads.
  
  - **Richardson Highway: Access/Safety Improvements (Rozak-Peridot).** Consolidate intersection and driveway access onto the Richardson Highway with needed links to collector roads on both the north and south sides of the corridor. Special considerations are needed for future access to large undeveloped parcels of land to the north of the Richardson Corridor and the Alaska Railroad tracks.

The Richardson Highway crossing projects are designed to improve public safety and facilitate transportation through the North Pole corridor, consistent with the purpose and needs of the proposed realignment project.

- **Flint Hills Storage Rail Yard.** This would allow tank car storage to be located along the Levee and not through the community of North Pole, Alaska. There could be additional siding tracks built to accommodate storage and customer demands. Conceptual designs are currently being developed for this project. The Flint Hills Storage Rail Yard would remove noise, aesthetic and air quality impacts, as well as transportation conflicts from the population center, consistent with the proposed project. Its location along the Tanana River Levee could potentially impact similar and proximal upland and wetland habitats and contiguous portions of the floodplain as the proposed project.

- **FARLR.** This project would optimize the alignment of ARRC’s mainline and Eielson Branch track within the Fairbanks area to improve safety, customer response, and minimize transportation conflicts with the adjacent communities. The proposed project addressed in the EA is Phase 1 of the FARLR. Phase 2 extends from MP 9 on the Richardson Highway (vicinity of Peridot Street), northwest to 3-Mile Gate, on the west border of Fort Wainwright. Phase 3 includes the area west of 3-Mile Gate, past Chena River. A funding source for conducting preliminary engineering and NEPA analyses for Phases 2 and 3 has not yet been identified. Phase 2 and 3 of the FARLR would extend the beneficial impacts of railway operational efficiency and public safety of the proposed project. Realignment associated with FARLR could potentially result in additional impacts to the floodplain and habitats within the region.
3.4.2 Cumulative Effects on the Physical Environment

The physical environment within and adjacent to the project study area would continue to be affected by cumulative effects from past, present and reasonably foreseeable future development.

Localized air quality impacts could occur during construction of present and future projects in the vicinity of the proposed project. Increases in fugitive dust during construction-related activities are common during construction and are short-term and relatively minor. Fugitive dust can be controlled through watering or other BMPs. Present and future projects in the vicinity of North Pole and Fairbanks focus largely on highway and road improvements that would increase traffic efficiencies throughout the Borough. The proposed NRE project would increase rail traffic through the project area and the region. However, improvements to air quality are expected to result from increased rail and vehicle operational efficiency. The contribution of the proposed realignment project to regional air quality would result in a minor beneficial impact on air quality by reducing the amount of vehicular emissions in the project area.

Key factors associated with cumulative impacts to water quality are erosion, sedimentation, direct contamination (e.g., spills or discharges), and non-point source contamination. BMPs adopted during construction related activities and required by SWPPPs would prevent adverse impacts to water quality. The proposed project would have minimal impacts on water quality when considered independently and in the context of past, present and future projects.

Impacts to floodplains from past present and future projects would continue to occur in the vicinity of the proposed project. The Tanana River Flood Control Levee, as a component of the Chena River Flood Control project, defines a boundary of a contiguous drainage basin. Any construction within the 100 year floodplain, or special flood hazard areas, requires specific permitting from the FSNB and requires no significant encroachment into the floodplain. These regulations ensure minimal adverse cumulative impacts to floodplain functions and values. The proposed project would comply with these regulations and have minor influence on the region protected by the Chena River Flood Control Project.

3.4.3 Cumulative Effects on the Biological Environment

Uplands in the project area, as well as areas adjacent to the proposed project corridor, would continue to be impacted as development within the region continues. Land clearing for all types of development requires the removal of vegetation. A large portion of the proposed project falls within a previously cleared corridor and there are significant tracts of undisturbed and native vegetation within the region. The cumulative amount and quality of uplands that would be permanently lost during construction of the proposed realignment is small and of lesser quality, relative to the amount of upland habitat that exists in the surrounding area. The contribution of the proposed project to the cumulative loss of uplands would be minor.

Past, present, and reasonably foreseeable future developments and activities, including the proposed project, would continue to affect wetlands within and adjacent to the study area. Wetland habitats in large contiguous extents are abundant along the Tanana River, adjacent to the project area. Regulatory protection of wetlands requires mitigation that is designed to offset immediate and cumulative impacts to wetlands within a project area. The acreage of wetlands that would be permanently lost to development is minimal relative to the amount of similar wetland types that exist in the surrounding area. The Flint Hills Storage Rail Yard is the only
known reasonably foreseeable future action that would impact wetlands within the immediate vicinity of the proposed project. The contribution of the proposed project to the cumulative loss of wetlands would be minor.

Wildlife and their associated habitats are and will continue to be affected by development in the region of the proposed project. The relative quality and quantity of habitat impacted by the proposed rail realignment is minimal. Construction activities of the proposed project would primarily be conducted along the Levee Corridor and at existing rail crossings where wildlife habitat disturbance has previously occurred. Construction activities associated with reasonably foreseeable future actions are also largely confined to already disturbed areas. The Tanana River and Flats immediately adjacent to the proposed project provide extensive, high quality habitat for a myriad of species. As such, cumulative impacts to wildlife habitat loss from the proposed project would be minor.

3.4.4 Cumulative Effects on the Human Environment

Past and present changes in land ownership and use have increased development on private lands in the area. Several subdivisions have developed within the project area within the past 10 years. Continued growth and change in land use patterns in the project area are expected as development and creation of transit-related infrastructure continues to increase. As long as land use controls remain in place and proposed changes to land use remain consistent with existing zoning requirements, the magnitude and extent of the cumulative effects on land use would be minor.

The proposed project would be beneficial to vehicular traffic movements by reducing at-grade crossings through the downtown area of North Pole. The impacts of the proposed project on transportation when combined with the impacts of future actions would provide an overall beneficial effect.

Past, present, and reasonably foreseeable future developments and activities, including the proposed project would have a beneficial impact on noise and vibration associated with railroad and train operations in the area by increasing the distance between noise sensitive receptors and the rail alignment. The proposed NRE project would increase rail traffic through the project area and the region. However, the increase in noise emissions from the NRE project has been estimated to be less than 0.4 dBA, which is imperceptible.

Current utility providers have sufficient capacity to service any future development that would come about as a result of reasonably foreseeable future actions. Short-term interruption of utility services associated with future development would be minor, lasting the duration of construction of the various projects.

Cumulative impacts to aesthetic and recreational resources from the construction of the proposed project would be minor. Property owners along the existing rail corridor would benefit from the removal of the train traffic. Current housing developments, such as Kimberly Lake, Ford and Eagle subdivisions, may experience short-term negative impacts to visual resources during construction, and when trains pass through the area. Recreational values would not be impacted because the Flood Control Levee Trail would remain in existence under either alternative. Trail improvements including ease and safety of access would result in potentially beneficial effects to recreational users.
3.5 Irreversible and Irretrievable Commitments of Resources

NEPA requires a review of significant irreversible and irretrievable effects that occur from development of the proposed project. Irretrievable effects apply to losses of production, use, or commitment of renewable natural resources. Irreversible effects apply primarily to the use of non-renewable resources, such as minerals or cultural resources, or to those factors that are only renewable over long periods of time, such as soil productivity. Irreversible effects also include the loss of future options.

Under development of the proposed project, irretrievable and irreversible commitments of resources would occur from the use of land, fill and gravel resources, electrical energy, fuel and labor. The commitment of energy and labor for construction is irretrievable and irreversible, but is not a significant impact. Fuel and labor savings would be realized with faster train times if the proposed project were implemented. Fuel savings would also be achieved because of reduced wait time at grade crossings. Land beneath the railroad embankment where the railroad track realignment is proposed would be the greatest irretrievable resource, but given that the majority of the proposed areas are not within on-going or future development sites, this impact is not significant. The No-Action Alternative would have no change from the current commitment of resources.

3.6 Local Short-Term Uses versus Long-Term Productivity

NEPA requires a review of the balance between short-term uses and long-term productivity of resources within the vicinity of the study area. Generally, short-term refers to the useful life of the project. Long-term refers to the time beyond the lifetime of the project. Impacts that narrow the range of beneficial uses to the environment are of primary concern. Potential impacts include selecting a development option that reduces the ability to pursue other possibilities, or committing a piece of land or other resources to a particular use that limits additional uses being performed on this site.

Conversion of the land to railroad use represents a short-term action that would have a long-term effect on the land’s productivity. It would have a long-term beneficial effect on the productivity of the rail operations through time saving and operation and maintenance costs incurred by the ARRC. Over the long-term, the productivity of the land would not be available to other uses.
4.0 ENVIRONMENTAL COMMITMENTS AND MITIGATION

Environmental commitments and mitigation measures that would be implemented are as follows:

*Air Quality.* Dust would be controlled as necessary during construction by watering or using other dust suppression measures. Exposed earthwork would be stabilized as soon as practicable to reduce windblown particulates in the area.

*Water Quality.* A SWPPP would be prepared to obtain coverage under the APDES General Permit for Discharges from Large and Small Construction Activities. BMPs, which may include the use of temporary erosion control measures such as straw waddles, silt fencing, etc., would be identified in the SWPPP and implemented to minimize erosion and sedimentation. ARRC would use contaminant-free embankment and surface materials in construction, and would monitor construction activities as necessary to reduce temporary impacts. Standard spill-prevention measures would be implemented during construction. Spill clean-up equipment (e.g., oil-absorbent pads) would be available onsite during construction. Disturbed areas would be reseeded with non-invasive species to stabilize soils and minimize erosion. Should groundwater be encountered during excavation associated with construction activities, dewatering would be conducted in compliance with either the APDES Construction General Permit or the ADEC Wastewater Disposal Excavation Dewatering General Permit and associated BMPs to minimize impacts to groundwater quality.

*Hydrology and Flood Zones.* Project design would comply with FNSB floodplain management regulations and permit conditions. The project would include drainage structures (cross culverts) in the Zone A special flood hazard areas to maintain hydrologic connectivity within the floodplains. A detailed H&H analysis would be performed during final design and permitting to confirm that placement of fill within the Zone A special flood hazard areas would not pose a significant risk through raising the base flood elevations and/or displacing floodwaters during a 100-year event, and that natural and beneficial floodplain values would be maintained. If flood risks are identified in the H&H analysis, mitigation measures would be developed and implemented to offset the impacts through construction of additional floodwater storage areas.

ARRC would coordinate with the USACE and FNSB to obtain the necessary approvals for modification of the Levee, and ensure that FNSB and USACE have continual access for inspection, maintenance, flood fighting, major repairs, and obtaining data. A plan would be developed by and between the FNSB, USACE, and ARRC to address the entire scope of the proposed project that impacts the Federal Project (e.g., changes in access, property ownership, maintenance responsibility, etc.).

*Soils and Geology.* The project would be designed and take into account the region’s potential for earthquake activity to mitigate potential damage to the new infrastructure. Site specific geotechnical measures would be implemented in areas subject to permafrost thaw and settlements. Strategies that may be implemented to mitigate thaw settlement include removing surficial silty/organic soils and replacing with clean granular fill, passively refrigerating the sub-grade to maintain the integrity of the permafrost and reduce the potential for thaw-settlement, and/or pre-thawing the silty sub-grade soils by stripping the organics and allowing the sub-grade to thaw naturally. Ground disturbance would be limited to only those areas necessary for construction activities, and appropriate erosion control measures would be implemented.
**Wetlands.** ARRC would clearly identify vegetation clearing and construction limits (boundaries) by staking, flagging, and/or fencing to prevent physical disturbance beyond the project limits authorized by the USACE Section 404 Permit. ARRC would comply with the provisions of the Section 404 Permit, including compensatory mitigation for unavoidable impacts to wetlands. Temporary impacts to wetlands during construction would be minimized, and staging activities would occur in non-wetland locations to the extent possible. Native vegetation would be reestablished in areas that are temporarily disturbed. The project would include drainage structures, as needed, to maintain existing drainage patterns and/or hydrologic connectivity.

**Wildlife.** To the extent possible, clearing of vegetation would occur before or after the typical bird nesting season, following USFWS guidance on time periods for avoiding vegetation clearing in Interior Alaska. This would also mitigate potential impacts to moose and many other mammals as it encompasses the most sensitive time when young are born.

**Land Use/Property Acquisition.** All land acquisition and relocation of residents and businesses would be completed in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Act and the Alaska Relocation Assistance and Real Property Acquisition Practices adopted under state statute (AS 34.60). ARRC would work with affected property owners to appropriately address project-related construction activity issues. To the extent practicable, ARRC would ensure that obstructions to business entrances and exits are minimized during construction activities. Once the funding and schedule for project construction are better defined, ARRC and ADOT&PF real estate representatives will work together to develop a process for acquiring the ROW necessary for the Richardson Highway crossing and overpass concurrently with acquisition of the ROW for the realignment, and to streamline the conveyance process.

**Utilities.** ARRC would coordinate with appropriate utility companies during design and construction so that utilities are protected during project-related construction activities. ARRC would minimize disruptions to utilities by scheduling project-related construction work and outages to low-use periods to the extent possible. ARRC would notify residents and other utility customers in advance of project-related construction activities requiring temporary service interruption.

**Transportation.** The final design of the Richardson Highway crossings (temporary at-grade and grade-separated crossings) and the frontage road would be coordinated with ADOT&PF. Acceleration/deceleration lanes would be 12-feet wide, and the vertical clearance for the rail-over-road grade-separated crossing (Alternative A) would be 18-feet. ARRC would consider establishing a diagnostic team to review the relocated Richardson Highway crossing in accordance with its Policy on Railroad/Highway Crossings. A traffic control plan would be prepared prior to initiating construction to avoid and minimize road closures and lane restrictions to the extent practical. Road users would be notified of temporary road closures and other construction-related activities, so alternate routes could be planned. Proper signage and notice of lane closures would be provided. Signs providing the name, address, and telephone number of a contact person would be displayed on-site to assist the public in obtaining immediate responses to questions and concerns about project activities. ARRC would coordinate with the FNSB and USACE to ensure adequate access for maintenance of the Levee is provided. ARRC would also coordinate with ADOT&PF regarding the levee access from the Richardson Highway.
Noise and Vibration. ARRC would work with its construction contractor(s) to minimize, to the extent practicable, construction-related noise disturbances near residential areas. Construction and maintenance vehicles shall be in good working order with properly functioning mufflers.

Archaeological and Historic Sites. Should construction activities unearth any archaeological or cultural resources, construction would be halted in the immediate area, until the SHPO is notified, the significance of the find is evaluated, and an appropriate course of action is identified.

Recreation. Grade-separated crossings would be used to the extent possible to provide access for recreational users over or under the new railroad embankment. During construction, some access restrictions to the existing trail and the Levee area could occur for safety purposes. Appropriate notification would be made to the FNSB and users, and detours would be well marked. Signs providing the name, address, and telephone number of a contact person would be displayed on-site to assist recreationalists in obtaining immediate responses to questions and concerns about project activities.

Contamination, Contaminated Sites, and UXO. Further investigation into possible contamination and presence of UXO may be conducted prior to property acquisition. Construction through the UXO area would require coordination with the U.S. Army, and potentially with USEPA and ADEC. Short-term hazardous materials construction impacts (e.g., fuel spillage from equipment) would be limited through ARRC contracting requirements, management plans, and BMPs that would include implementation spill-prevention measures and hazardous materials handling and fuel management practices. Spill clean-up equipment (e.g., oil-absorbent pads) would be available onsite during construction. Any contamination encountered during construction would be addressed in accordance with applicable state and federal regulations.
5.0 PUBLIC SCOPING AND AGENCY CONSULTATION

During initial stages of the North Pole Road/Rail Crossing Reduction Project, federal, state, and local agencies and government officials, Native organizations, and the public were consulted to obtain pertinent information, identify issues and mitigating measures, and/or assist in the development of reasonable alternatives. Initial outreach methods included newspaper advertisements, news releases, information flyers, and a project website. Consultation and Coordination Letters are included in Appendix H. Consultation has continued with various agencies regarding specific issues. Organizations that have been contacted regarding the project are listed below.

**Federal Agencies and Officials**

- Bureau of Land Management
- Federal Aviation Administration
- Federal Highway Administration (FHWA)
- Federal Railroad Administration (FRA)
- National Marine Fisheries Services (NMFS)
- U.S. Army Corps of Engineers (USACE)
- U.S. Army Garrison, Fort Wainwright, Alaska (USAG FWA)
- U.S. Coast Guard
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (USWFS)

**State Agencies and Officials**

- Alaska Department of Environmental Conservation (ADEC), Division of Water
- Alaska Department of Fish and Game (ADF&G)
- Alaska Department of Transportation and Public Facilities (ADOT&PF)

**Local Agencies and Officials**

- City of Fairbanks
- City of North Pole
- Fairbanks North Star Borough (FNSB)
- Golden Valley Electric Association (GVEA)
- Petro Star North Pole Refinery
- Flint Hills Refinery

**Native Organizations**

- Doyon, Limited
- Tanana Chiefs Conference

Additional public outreach and agency consultation is planned. The EA will be made available for a during a 30 day public comment period. A public meeting will be held in April 2012, during that comment period. Any comments received will be considered and addressed, as appropriate, prior to FRA making a decision as to whether to issue a FONSI for the project.
## 6.0 LIST OF PREPARERS

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7.0 REFERENCES


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USFWS. 2011a. Personal Communication between Jewell Bennett, USFWS and Barbara Hotchkin, ARRC, on February 25, 2011.


FIGURES
Figure 1-1
Location and Vicinity Map

ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

December 22, 2011
WO: D60432
Figure 1-2
Project Area
ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

Existing Track to be Removed
Existing Rail Alignment
City of North Pole
Project Study Area

Miles

0 0.375 0.75

December 22, 2011
WO: D60432
Figure 2-1
Alternatives A and C
ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

- Alternative C (Proposed Action)
- Alternative A
- Existing Track to be Removed
- Existing Rail Alignment
- City of North Pole
- Project Study Area

December 22, 2011
WO: D60432
Figure 2-2
Proposed Realignment of Old Richardson Highway

ALASKA RAILROAD CORPORATION

North Pole Road/Rail Crossing Reduction Project

Alternative C
(Proposed Action)
Alternative A
Existing Track to be Removed
Existing Rail Alignment
Project Study Area
Existing 200' ARRC ROW

Old Richardson Highway to be relocated

Additional Impacts
Outside Existing ARRC ROW

Piledriver Slough
Tanana River Levee

Map Location

December 22, 2011
WO: D60432
TYPICAL SECTION - ALTERNATIVE A BEFORE N.P.H.S. TRAIL CROSSING (FROM STA. 63+90 / MP G12.8A TO STA. 206+00 / MP G15.6A)

NOTES:
1. SOME IMPACTS MAY OCCUR ON THE PROPOSED SIDE OF THE LOUE AT POINTS ALONG THE PROPOSED ALIGNMENT.
2. ALTERNATIVE A IS COMBINATION OF ALTERNATIVES A AND D DISCUSSED AT THE 01/25/11 SCORING MEETING.

TYPICAL SECTION - ALTERNATIVE A AFTER N.P.H.S. TRAIL CROSSING (FROM STA. 206+00 / MP G15.6A TO STA. 201+20 / MP G17.2A)

NOTES:
1. SOME IMPACTS MAY OCCUR ON THE PROPOSED SIDE OF THE LOUE AT POINTS ALONG THE PROPOSED ALIGNMENT.
2. ALTERNATIVE A IS COMBINATION OF ALTERNATIVES A AND D DISCUSSED AT THE 01/25/11 SCORING MEETING.
Proposed At-Grade Rail Crossing

Raise Existing At-Grade Rail Crossing

Rentals St

Richardson Hwy

Levee Wy

Volleyball Ct

Green Construction Existing At-Grade Crossing to be Eliminated

Green Construction Proposed Access Road

Map Location

North Pole Road/Rail Crossing Reduction Project

Figure 2-4
Proposed Reconstruction of Green Construction Access at Rentals Street (Alternative A)

Alternative A
Existing Rail Alignment
Project Study Area
Existing 200' ARRC ROW
Limits of Grading Impacts
Richardson Highway
Agreement with ADOT&PF
Proposed Road Improvements
Figure 2-5

Typical Rail Section (Alternative C)

NOTES:
1. Some impacts may occur on the right-of-way side of the levee at points along the proposed alignment.
2. Alternative A is combination of Alternatives A and C (described at the 01/29/11 hearing meeting).

Figure 2-6

Typical Section - Alternative C At Industry Yard (From STA. 209+61 / MP 16.4 C To STA. 265+60 / MP 17.3 C)

NOTES:

1. Proposed old Richardson Way Rise - 15'

Figure 2-7

Typical Section - Existing Track Near Old Richardson Highway (Existing MP G18.6 To MP G19.1)

NOTES:
1. Track section and location will vary based on the location of the old line along the corridor.
Figure 2-6
Alternative E
ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

December 21, 2011
WO: D60432

City of North Pole
Project Study Area

Alternative E Crossings
Existing Rail Alignment

0 0.375 0.75 Miles

P:\Projects\D60432\GIS\ENV\EA\Alternative E Crossings.mxd Dec 21, 2011 8:54:30 AM User: chris.harrington
Figure 2-7
Sample Intersection Impact (Alternative E)
ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

December 22, 2011
WO: D60432
(This portion of the Tanana River is considered navigable by DNR and USACE)
Alternative C (Proposed Action)
Alternative A
Existing Track to be Removed
Existing Rail Alignment
City of North Pole
Project Study Area

Water Service Only
Water and Sewer Service
No Water or Sewer Service

Figure 3-2
Water System Service Area

ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

December 22, 2011
WO: D60432
Total Floodplain Impacts
Alternative A Impact = 8.9 ac = 2.2%
Alternative C Impact = 17.7 ac = 4.4%
Figure 3-4
Wetlands

ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

Alternative A
Alternative C (Proposed Action)
Existing Track to be Removed
Existing Rail Alignment
City of North Pole
Project Study Area

Source:
Wetlands: DOWLHKM 2011
NWI: National Wetlands Inventory based on 2002-2007 aerial imagery

0 0.375 0.75 Miles

December 22, 2011
WO: D60432
Figure 3-5
Raptor Nests

ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

Alternative C (Proposed Action)
Alternative A
Existing Track to be Removed
Existing Rail Alignment
City of North Pole
Project Study Area

Source: Bird Nests: USFWS
http://alaska.fws.gov/mbs/mbs/landbirds/alaskabaldeagles/default.htm

USFWS
Field Documented Raptor Nest
Bald Eagle Nest
Common Raven Nest
Unoccupied
Occupied

0 0.375 0.75 Miles

December 22, 2011
WO: D60432
Figure 3-6
Land Use

ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

Source: Land Use: FNSB

December 22, 2011
WO: D60432

City of North Pole
Alternative C (Proposed Action)
Alternative A
Project Study Area
Existing Track to be Removed
Existing Rail Alignment

Heavy Industrial Area
Light Industrial Area
Military Land
Open Space Natural Area
Outskirt Area
Off Highway Vehicle Area
Preferred Agricultural Land
Preferred Residential Land
Reserve Area
Urban Area
Perimeter Area
Preferred Commercial Area

Tanana River
Tanana River Levee
Chena Slough
Piledriver Slough

Miles
0 0.375 0.75

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Figure 3-7
Zoning

ALASKA RAILROAD CORPORATION

North Pole Road/Rail Crossing Reduction Project

Alternative C (Proposed Action)
Alternative A
Existing Track to be Removed
Existing Rail Alignment
City of North Pole
Project Study Area

Central Business District
General Commercial District
General Use District
Heavy Industrial District
Light Industrial District
Multiple-Family Residential District
Single-Family District
Two-Family Residential District

Outdoor Recreational District
Rural and Agricultural District
Rural Estate District; Rural Estate District
Rural Residential District

Source: Zoning: FNSB

Dec 22, 2011
User: chris.harrington
Figure 3-9
Grade-Separated Richardson Highway
Area Impacts (Alternative C)
Highway Area Impacts

ALASKA RAILROAD CORPORATION

North Pole Road/Rail Crossing Reduction Project

March 21, 2012
WO: D60432

Map Location

Proposed Impacts Due to
Grading & Improvements
Proposed Impacts Due to
Construction Phasing
Proposed Areas for Drainage

Alternative C
Existing Rail Alignment
Project Study Area
Existing 200' ARRC ROW
Proposed ARRC ROW
Proposed Limits of Impacts
Outside ROW
Relocation of Driveway
or Cul-de-Sac
Overhead Electric Lines

Proposed Road over Rail
Grade-Separated Crossing

Existing Frontage Road to be Removed

Tanana River Levee
Figure 3-10
Proposed Trail Crossings

ALASKA RAILROAD CORPORATION
North Pole Road/Rail Crossing Reduction Project

Alternative C (Proposed Action)
Alternative A
Existing Track to be Removed
Existing Rail Alignment
City of North Pole
Project Study Area

Existing Trail
Proposed Trail Crossings

December 22, 2011
WO: D60432
ALASKA RAILROAD CORPORATION

North Pole Road/Rail Crossing Reduction Project

Figure 3-11
Contaminated Sites

Alternative C
(Proposed Action)

Alternative A

Existing Track to be Removed

Existing Rail Alignment

City of North Pole

Project Study Area

Environmental Concerns Documented
(Visual Observation)

ADEC Documented
Contaminated Sites

Documented Groundwater Contamination Plume

Source:
Contaminated Sites: DEC
Contaminated Sites Database

December 22, 2011
WO: D60432
APPENDICES

(on attached CD)

Appendix A..............................................................Scoping Summary Report
Appendix B..........................................................Alternatives Analysis Report
Appendix C......................................................Air Quality Assessment
Appendix D..................................................Preliminary Property Impacts
Appendix E..............Wetland Delineation/Vegetation Mapping and Functions and Values Assessment
Appendix F......................................................Wetland Impacts
Appendix G..............................................................Noise and Vibration Analysis
Appendix H..............................................................Agency Correspondence and Consultation
Appendix I.........................................................Contaminated Sites Assessment
Appendix J...............................................................Relocation Study
APPENDIX D

Preliminary Property Impacts
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**SUMMARY:**
- **10 FULL TAKE PARCELS**
- **44 PARTIAL TAKE PARCELS**
- **54 SUBTOTAL EASEMENTS THROUGH EXISTING RIGHT-OF-WAY**
- **48 TOTAL PARCELS**
- **17 PROPERTY OWNERS**
- **40 VACANT PARCELS**
- **11 DEVELOPED PARCELS**
183164 - Jack L. Howard
Partial Take of Commercial Land
~ 1ac = ~35% of total ac

183172 - Jack L. Howard
Full Take of Commercial Land
~ 1ac = ~6% of total ac

9999999 - Road Easement
Roadway Easement
< 1 ac = ~10% of total ac

615665 - USA/BLM
Partial Take of Vacant Land
~ 5 ac = ~4% of total ac

183199 - FNSB
Partial Take of Vacant Land
~ 6 ac = ~6% of total ac

621250 - USA/BLM
Partial Take of Vacant Land
~ 1 ac = ~5% of total ac

615695 - USA/BLM
Partial Take of Vacant Land
~ 2 ac = ~6% of total ac

621260 - USA/BLM
Partial Take of Vacant Land
~ 1 ac = ~8% of total ac

615695 - USA/BLM
Partial Take of Vacant Land
~ 2 ac = ~6% of total ac

621270 - USA/BLM
Partial Take of Vacant Land
~ 1 ac = ~5% of total ac

615733 - USA/BLM
Partial Take of Vacant Land
~ 7 ac = ~19% of total ac

615723 - USA/BLM
Partial Take of Vacant Land
~ 4 ac = ~11% of total ac

615733 - USA/BLM
Partial Take of Vacant Land
~ 7 ac = ~19% of total ac

615695 - USA/BLM
Partial Take of Vacant Land
~ 2 ac = ~6% of total ac

9999999 - Old Richardson Hwy
Roadway Easement
~ 2 ac = ~28% of total ac

621348 - USA/BLM
Partial Take of Vacant Land
~ 2 ac = ~30% of total ac

9999999 - Beaver Spring Creek
Creek Easement
< 1 ac = ~8% of total ac

615695 - USA/BLM
Partial Take of Vacant Land
~ 2 ac = ~6% of total ac

183170 - Jack L. Howard
Partial Take of Commercial Land
~ 1ac = ~35% of total ac

183172 - Jack L. Howard
Full Take of Commercial Land
~ 1ac = ~6% of total ac

615695 - USA/BLM
Partial Take of Vacant Land
~ 2 ac = ~6% of total ac

370+39.52 = MP G18.9

370+40.00

NORTH POLE ROAD/RAIL
CROSSING REDUCTION PROJECT
ALASKA RAILROAD CORPORATION
ENGINEERING SERVICES:
P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

SCALE: 1" = 800 ft
DATE: 12/20/11

DESIGNED BY: KMW
DRAWN BY: KMW
CHECKED BY: LJT
APPROVED BY: LJT

© TranSystems

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</table>

**SUMMARY:**

- **FULL TAKE PARCELS:** **35**
- **PARTIAL TAKE PARCELS:** **73**
- **SUBTOTAL:** **108**
- **EASEMENTS THROUGH EXISTING RIGHT-OF-WAY:** **13**
- **TOTAL:** **121**
- **PROPERTY OWNERS:** **41**
- **VACANT PARCELS:** **35**
- **DEVELOPED PARCELS:** **86**