

E0-1332



SURFACE TRANSPORTATION BOARD
Washington, DC 20423

Office of Economics, Environmental Analysis and Administration

December 31, 2007

Kathryn Kusske Floyd, Esq.
Mayer Brown, LLP
1909 K Street, NW
Washington, D.C. 20006

Re: STB Finance Docket No. 34658, The Alaska Railroad Corporation—
Petition for Exemption to Construct and Operate a Rail Line Between
North Pole, Alaska and Delta Junction, Alaska

Dear Ms. Floyd:

To ensure the accuracy of the information used in the Section of Environmental Analysis' environmental review for the above-referenced proceeding, I request that the Applicant review the enclosed draft descriptions of the proposed action and alternatives. Please note that the figures accompanying these descriptions are still being refined.

Please send any corrections that you might have to Dave Navecky of my staff and to our independent third-party contractor: Alan Summerville, ICF International, 9300 Lee Highway, Fairfax, VA 22031-1207.

Sincerely,

Victoria Rutson
Chief
Section of Environmental Analysis

Enclosure

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Chapter 2 Proposed Action and Alternatives

VERSION REDACTED FOR ARRC REVIEW AND COMMENT

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CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction

This chapter describes the Proposed Action and Alternatives, including the No-Action Alternative, considered in SEA's environmental review. This chapter also identifies and briefly discusses the alternatives that were considered and eliminated from detailed analysis.

2.1.1 Proposed Action and Alternatives

The Proposed Action would involve construction of an approximately 80-mile rail line extension from the existing Eielson Branch of the Alaska Railroad. The Eielson Branch runs from Fairbanks, Alaska, through the community of North Pole to the Eielson Air Force Base. The proposed extension would begin at milepost 20.18 on the Eielson Branch (milepost 0 for the Northern Rail Extension) at the east end of the Chena River Overflow Bridge, just south of the community of North Pole, and extend to the southern side of the community of Delta Junction. ARRC also would construct a dual-modal bridge over the Tanana River that would be capable of supporting both rail and vehicular traffic.

ARRC proposes to support commercial freight needs for communities and businesses, including the agricultural, mining, and petrochemical sectors, with the rail extension. ARRC also states that the rail line would serve as an alternative to the Richardson Highway for passenger transportation and local tourism. The rail line would provide year-round access to the Fort Wainwright military training facilities, Tanana Flats Training Area, and Donnelly Training Area, located on the west side of the Tanana River. The rail line and/or the dual-modal bridge over the Tanana River could be used to transport military cargo and personnel to and from the training facilities.

Under the No-Action Alternative, ARRC would not construct an extension of the existing rail line or construct the dual-modal bridge over the Tanana River to transport commercial freight, military cargo and personnel, or passengers.

2.1.2 Background

The Alaska Railroad network extends from Seward, Alaska, through Anchorage and Fairbanks, ending at the Eielson Air Force Base through the Eielson Branch rail line (see Figure 2.1-1). The existing Eielson Branch rail line services the Eielson Air Force Base and North Pole Refinery. Currently, commercial freight other than that associated with the Eielson Air Force Base and the refinery generally enters and leaves the project area by truck via the Richardson Highway (Alaska Route 4 from Valdez to Delta Junction and Alaska Route 2 from Delta Junction to Fairbanks) or the Alaska Highway (Alaska Route 2 from Delta Junction to Tok and beyond).

The U.S. Army uses the Tanana Flats and Donnelly training areas for maneuver training activities for the Stryker Brigade Combat Team. The Tanana Flats

A **Stryker** is an eight-wheel drive, hard-steel-structured vehicle designed for increased ground mobility and firepower compared to lighter infantry brigade vehicles.

Administratively Confidential

- 1 Training Area includes the Blair Lakes Impact Area. The Blair Lakes Impact
- 2 Area is managed and primarily used by the U.S. Air Force as a bombing range.

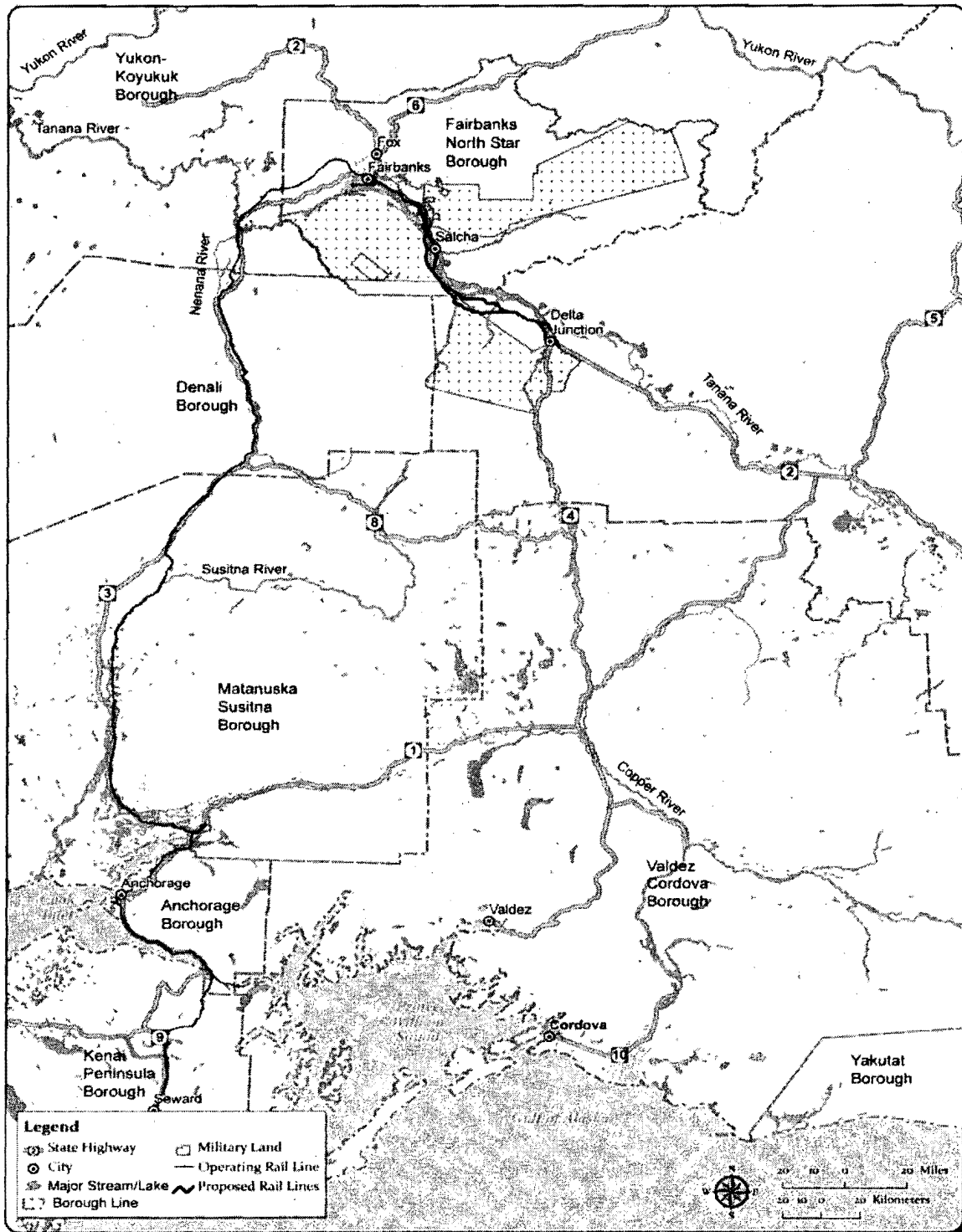


Figure 2.1-1
Map of Proposed Project Area

1 Ground training activities in the Tanana Flats and Donnelly training areas outside
2 of winter are limited due to the prevalence of wetlands.

3 Currently, access to the military training facilities at Tanana Flats Training Area
4 and Donnelly Training Area is restricted by the Tanana River and Delta River.
5 There are no permanent bridges across these rivers within the area of the
6 proposed rail extension. In the winter, the U.S. Army and U.S. Air Force
7 construct **ice bridges** to transport vehicles and troops to the training areas. Two
8 ice bridges are typically constructed on the Tanana River: one near Goose Island
9 connecting the Fort Wainwright Main Post to the Tanana Flats Training Area,
10 and another near Harding Lake (USARAK, 2004). The Delta River ice bridge is
11 constructed west of Fort Greely in Delta Junction. The U.S. Army and U.S. Air
12 Force access the training areas on the west side of the Tanana and Delta rivers by
13 helicopters, planes, or boats during the summer (USARAK, 2004).

14 The Stryker Brigade Combat Team reaches the ice bridges to access the training
15 areas via the public roads or roads on Fort Wainwright Main Post. To reach the
16 Donnelly Training Area, the Stryker Brigade Combat Team uses the Richardson
17 Highway to travel to the Delta Junction area from the Fort Wainwright Main
18 Post. The Stryker Brigade Combat Team uses the Alaska Railroad system for
19 deployment to the Port of Anchorage en route to missions out of State and out of
20 the country.

21 Currently, there are no public transportation services between North Pole and
22 Delta Junction. Severe winter conditions can make the Richardson Highway
23 impassible for public and commercial traffic.

24 2.1.3 Alternatives Development

25 Section Redacted

26 2.2 Proposed Action

27 2.2.1 Proposed Action Overview

28 Under the Proposed Action, ARRC would construct and operate a single-track
29 railroad in interior Alaska starting south of the community of North Pole and
30 ending south of the community of Delta Junction (see Figure 2.1-1). The rail line
31 would transport commercial freight, military supplies, and passengers. Other
32 facilities such as communication towers and a passenger platform in Delta
33 Junction would be constructed to support rail line operations.

34 The rail line would generally follow the Tanana River, which is a relatively fast-
35 moving, **braided channel** with a wide floodplain and variable channel location.
36 The rail line would require one crossing of the Tanana River as well as crossings
37 of the Delta River, Little Delta River, Delta Creek, and potentially the Salcha
38 River. The Tanana River Bridge would be a dual-modal structure able to support
39 both rail and military vehicular traffic. The Little Delta River and Delta Creek
40 would have separate bridges for the track and vehicles. The Proposed Action
41 does not include providing vehicle access over the Salcha and Delta rivers. The
42 rail line would also have multiple **grade crossings** and a possible relocation of

Ice bridges are constructed on top of rivers that do not completely freeze by artificially thickening the ice sheet to safely provide access over these rivers.

A braided channel is a channel comprised of a network of smaller channels separated by small and often temporary islands known as braid bars.

A grade crossing is the intersection of a public or private road, pedestrian walkway, or trail and a rail line.

the Richardson Highway and the Salcha Elementary School depending on alternative segment selection.

ARRC proposes a 200-foot-wide right-of-way for the rail line. For this EIS, it is assumed that all construction activities would occur within this right-of-way unless otherwise noted. The width of the right-of-way may vary, as necessary, to minimize the impact on sensitive resources or accommodate the terrain. The right-of-way would contain the rail line, sidings at several locations, a power line, a buried communication cable, and an access road (see Figure 2.2-1). Section 2.2.5 explains the difference in the widths of the right-of-way on the east and west sides of the Tanana River. The area within the right-of-way cleared for construction but not needed for permanent structures would be restored to natural conditions consistent with rail line maintenance requirements.

ARRC would need to receive a right-of-way grant from BLM to use a corridor of public land for the construction and operation for that portion of the proposed Northern Rail Extension. The land covered by the right-of-way grant would include the 200-foot right-of-way. ARRC also would need to obtain a similar easement from the ADNIR for lands under state ownership. In addition, ARRC would need to acquire some private lands.

Operation support facilities would be constructed in addition to the rail line. The location of some of these facilities would vary depending on which alternative segments would be constructed. **Temporary construction support facilities** would also be built, but would be removed after construction is completed.

Most facilities would require permanent or temporary access roads. Some communication towers would have helicopter-only access. Locations for communication towers have been identified, but exact locations for other facilities would be determined in the final construction design. Sidings, a passenger facility, and bridge staging areas would be sited, where possible, within the 200-foot right-of-way. Other facility footprints that would extend beyond the construction right-of-way are described in more detail below.

2.2.2 Alternatives Considered in SEA's Environmental Review

The Proposed Action and Alternatives include common segments and alternative segments (see Figures 2.2-2 and 2.2-3 to 2.2-9). Common segments are portions of the rail line with a single route option. Alternative segments provide multiple route options. There are three common segments—north, central, and south common segments—with a combined length of 17.2 miles. Between these common segments are four sets of alternative segments with two or three segments each.

ARRC filed its preferred alternative with the Board on July 6, 2007. All common segments are part of the preferred alternative identified by ARRC. Alternative segments that were filed as ARRC's preference are identified in the sections below and listed in Table 2.2-1. SEA has not identified a preferred alternative for this Draft EIS.

Temporary construction support facilities are structures or areas that would support construction of the rail line and facilities. Structures would be removed and areas revegetated after construction is completed. Temporary construction support facilities would include:

- construction staging areas,
- construction camps,
- borrow areas,
- river gravel source sites,
- bridge staging areas,
- grade-separated crossing staging areas, and
- temporary construction bridges.

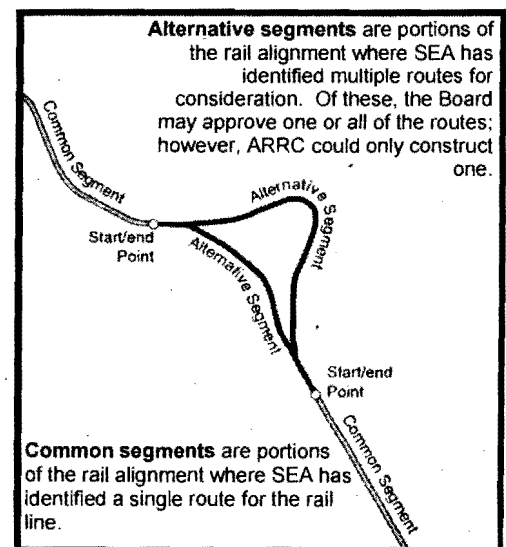


Figure 2.2-2. Conceptual Display of Common and Alternative Segments

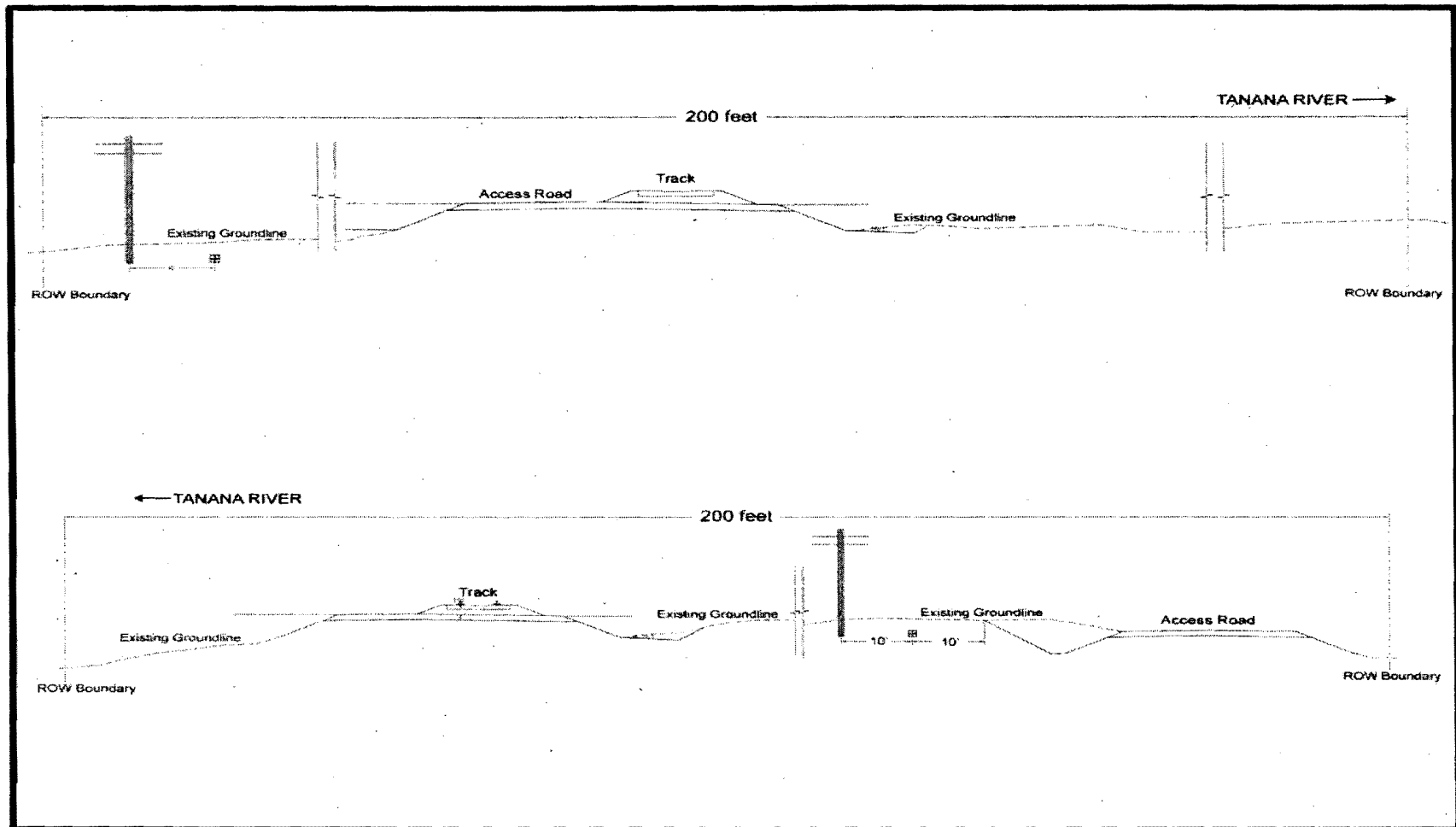


Figure 2.2-1
Cross Sections of Rail Line Right-of-Way on East Side (top) and West Side (bottom) of Tanana River.

Table 2.2-1
ARRC's Preferred Alternative Segments

North Common Segment
Eielson Alternative Segment 3
Salcha Alternative Segment 1
Central Common Segment
Donnelly Alternative Segment 1
South Common Segment
Delta Alternative Segment 1

1 North Common Segment

2 The North Common Segment starts at the east end of the Chena River Overflow
3 Bridge off of the Eielson Branch and extends 2.7 miles southeast to meet the
4 Eielson Alternative Segments (see Figure 2.2-4). The segment runs roughly
5 parallel to the Richardson Highway, crosses the Eielson Farm Road, and is on the
6 east side of the Tanana River.

7 Eielson Alternative Segments

8 SEA is considering three alternative segments through the Eielson area that start
9 about one half mile southeast of the Eielson Farm Road (see Figure 2.2-4). Each
10 alternative segment has at least one shared segment section. The alternative
11 segments pass between the fence line of Eielson Air Force Base on the east and
12 the Eielson farm community on the west. They connect with the Salcha
13 Alternative Segments.

14 **Eielson Alternative Segment 1** takes the most westerly route, closer to the farm
15 community and farthest from the Richardson Highway. The segment crosses
16 through some farm community property while staying to the west along Pile
17 Driver Slough. The segment crosses Sika Street and the Old Richardson
18 Highway before hugging the Tanana River for approximately the last 3 miles of
19 the alternative segment. This alternative segment is 10.3 miles long.

20 **Eielson Alternative Segment 2** follows the same route as the Eielson
21 Alternative Segment 1 for approximately 5.7 miles, at which point Eielson
22 Alternative Segment 2 bears more to the southeast, crosses Pile Driver Slough,
23 and follows a route closer to the Richardson Highway. The last 2.2 miles of
24 Eielson Alternative Segment 2 share the same route as Eielson Alternative
25 Segment 3. This alternative segment is 10.0 miles long.

26 **Eielson Alternative Segment 3** takes the most easterly route, remaining closer to
27 the Richardson Highway and located largely within Eielson Air Force Base
28 property, but outside the base fence line. The segment would cross Pile Driver
29 Slough approximately one half mile into its route and then stay east of the slough
30 for approximately 4.2 miles before crossing Twenty-Three Mile Slough, a
31 tributary of Pile Driver Slough. This alternative segment is 10.1 miles long.
32 This is ARRC's preferred alternative segment.

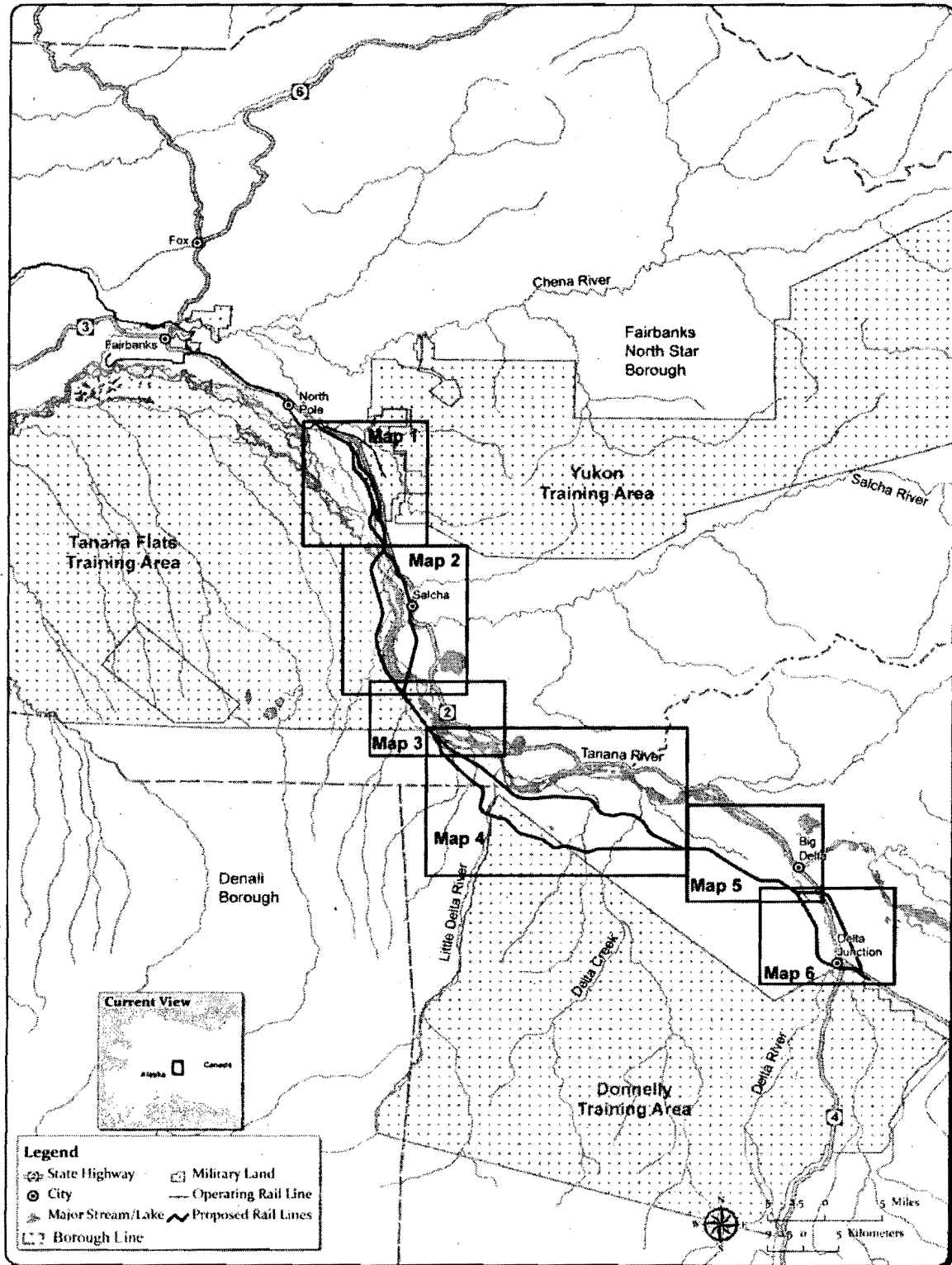


Figure 2.2-3
Map Key for Areas Along Proposed Northern Rail Extension

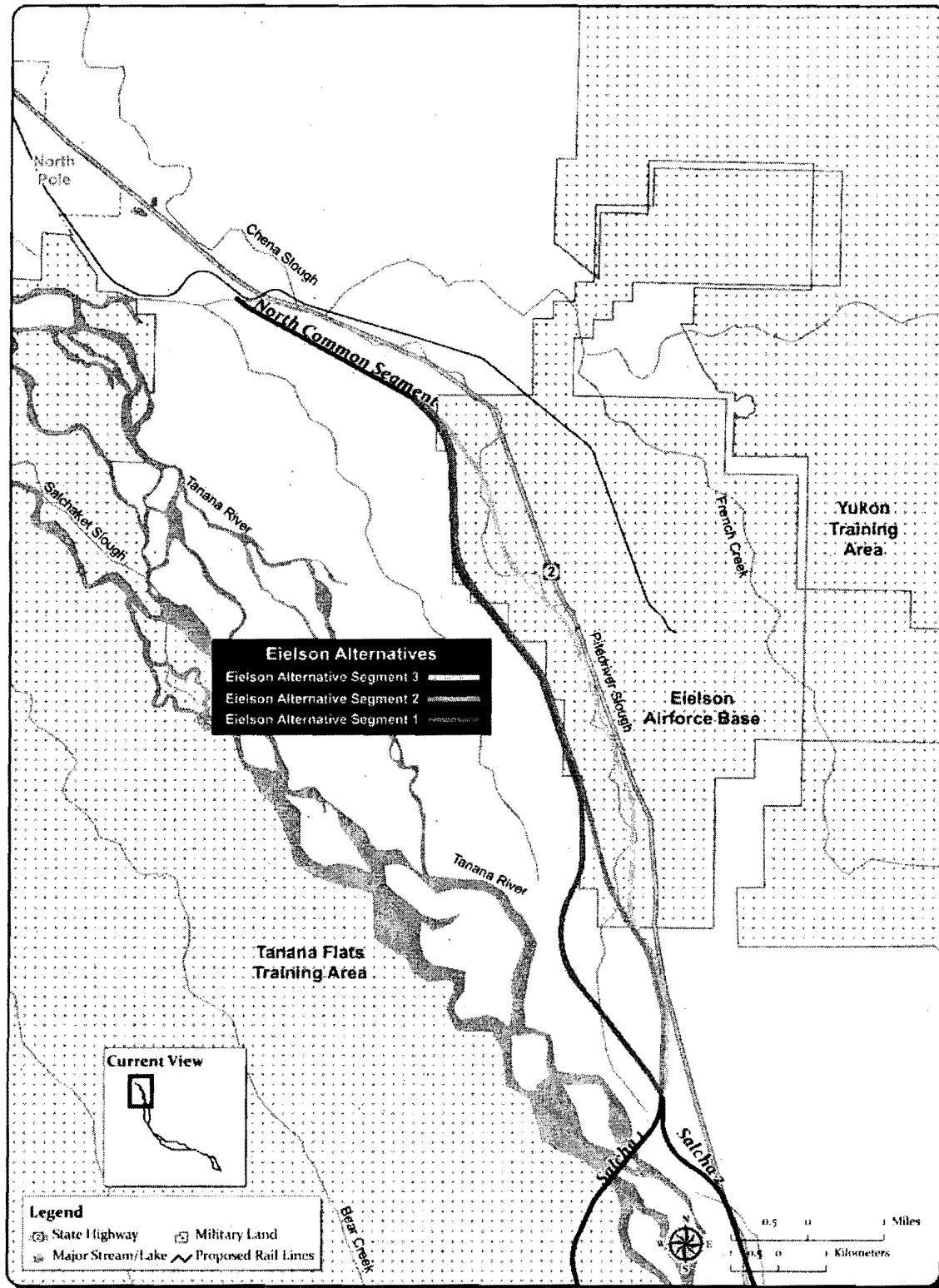


Figure 2.2-4
North Common Segment and Eielson Alternative Segments Within Map Area 1
 [Note: Figure being refined to include roads and other features referenced in narrative.]

Salcha Alternative Segments

SEA is considering two alternative segments for the Salcha section (see Figure 2.2-5), each starting approximately 0.3 mile northwest of the intersection of the Old Richardson Highway and Bradbury Drive. The segments cross the Tanana River at different places but both run south to join at the Central Common Segment.

Salcha Alternative Segment 1 crosses the Tanana River just west of the intersection of the Old Richardson Highway and Ruger Trail. After crossing the river, the alternative segment runs through the Tanana Flats Training Area on the west side of the river. The segment is 11.8 miles long and would require a dual-modal bridge ranging from 2,400 to 3,500 feet in length to cross the Tanana River. This is ARRC's preferred alternative segment.

Salcha Alternative Segment 2 remains on the east side of the Tanana River for most of its 14.3-mile route. For approximately the first 9 miles, the route parallels the Tanana River and Richardson Highway. The river then curves west while the route maintains a southerly direction. In approximately the last 3 miles, the segment crosses the river at Flag Hill, where it joins Salcha Alternative Segment 1 at the Central Common Segment. The Tanana River crossing would require a dual-modal bridge span ranging from 1,300 to 2,800 feet in length. This alternative segment would require relocation of a portion of the Richardson Highway and Salcha Elementary School. Approximately 0.5 miles of the highway would need to be relocated further into the river bluff and the rail line would assume the location of the highway by the river. In addition to the Tanana River main channel crossing, the alternative segment would cross a few Tanana River side channels, the Little Salcha River, and the Salcha River.

Central Common Segment

The Central Common Segment connects the Salcha Alternative Segments and the Donnelly Alternative Segments (see Figure 2.2-6). It runs parallel to the west bank of the Tanana River in a southeasterly direction and is 4.1 miles long.

Donnelly Alternative Segments

SEA is considering two alternative segments for the Donnelly area (see Figure 2.2-7). Both run on the southwestern side of the Tanana River and end approximately 4 miles east of Delta Creek, where they meet the South Common Segment. Both alternative segments have major crossings of Delta Creek and the Little Delta River but run through distinct terrains with different elevation profiles.

Donnelly Alternative Segment 1 takes the southern route, farther from the Tanana River and through the northeastern corner of the Donnelly Training Area. This segment is 28.0 miles long and crosses steep grades. It would require the construction of 2 major bridge crossings, 5 small bridges, and 36 culverts. The route would cross the Delta Creek **paleochannel**, an ancient water channel that appears to no longer be active but could become active during periods of high flow. This is ARRC's preferred alternative segment.

A **paleochannel** is an ancient water channel that no longer carries water on a regular basis.

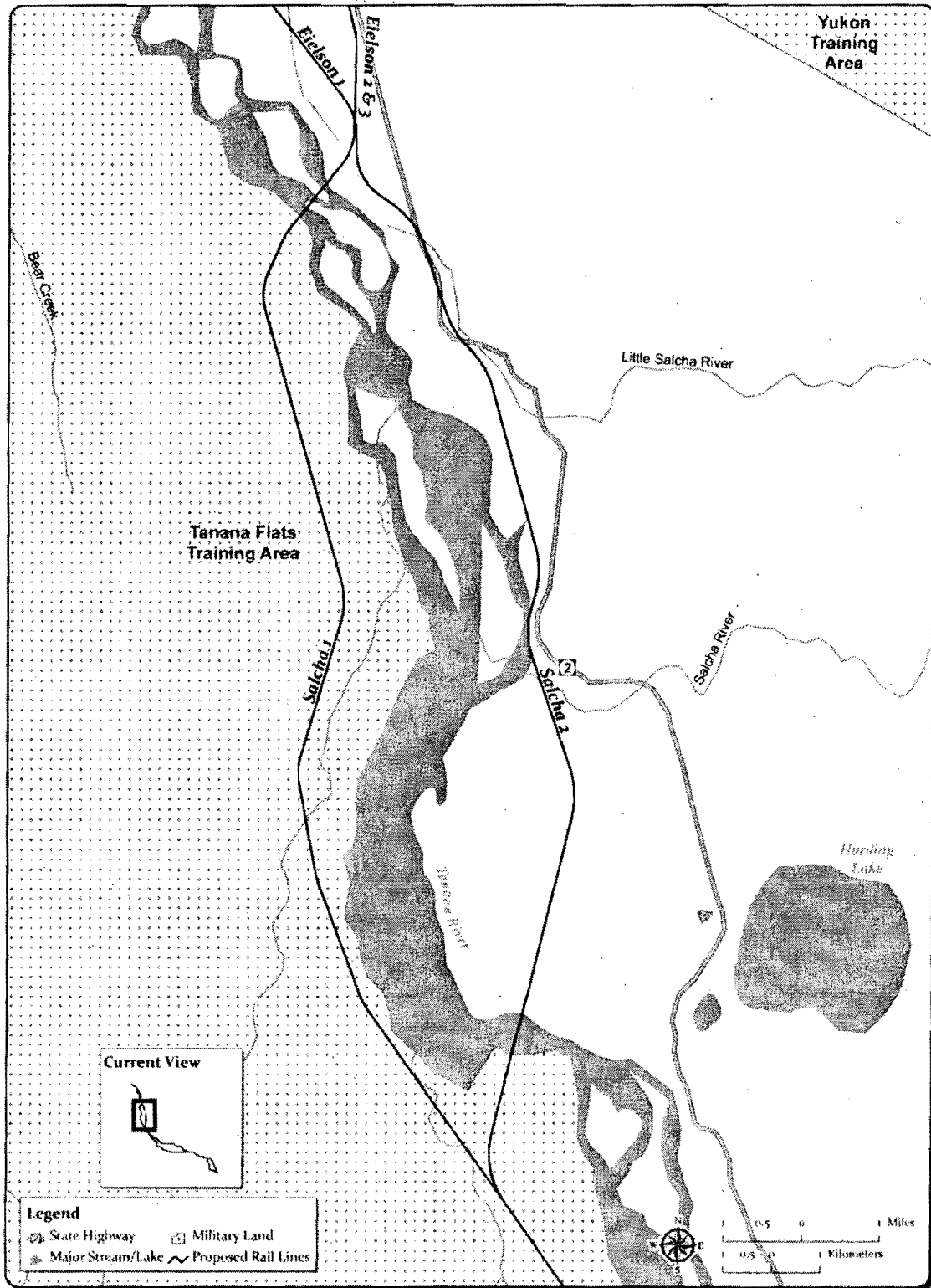


Figure 2.2-5
Salcha Alternative Segments Within Map Area 2

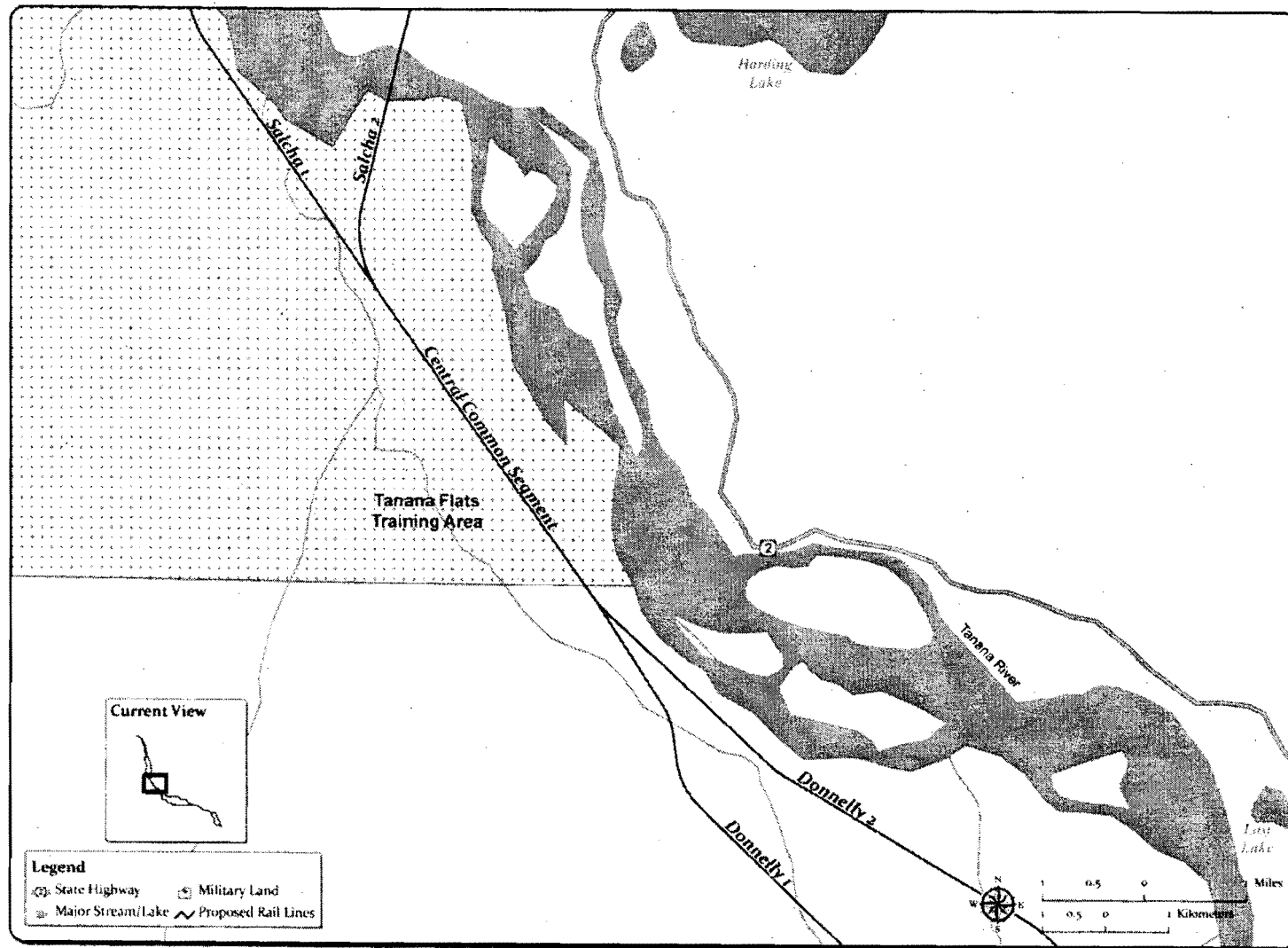


Figure 2.2-6
Central Common Segment and Adjoining Alternative Segments Within Map Area 3

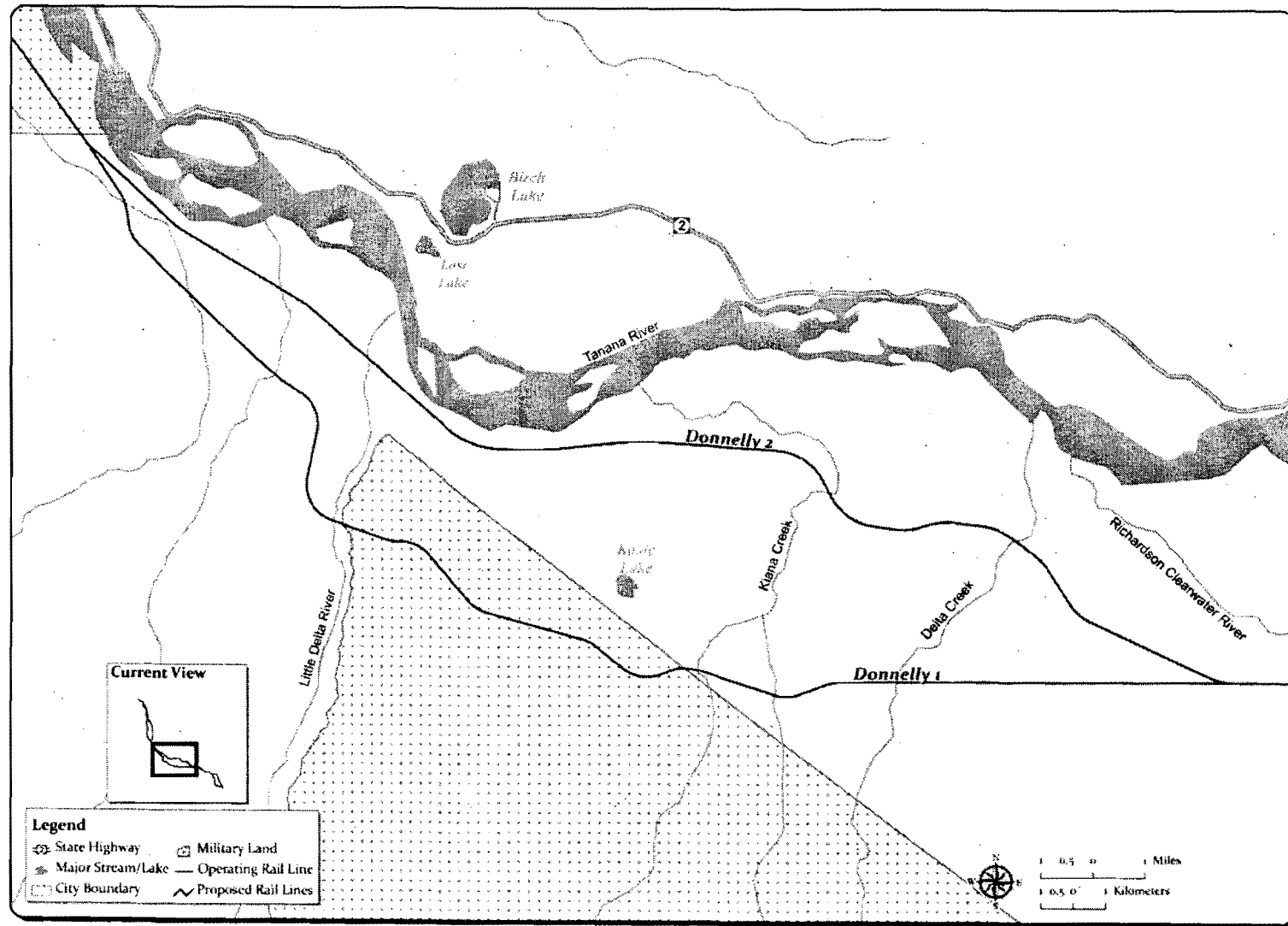


Figure 2.2-7
Donnelly Alternative Segments Within Map Area 4

Donnelly Alternative Segment 2 runs closer to the Tanana River than Donnelly Alternative Segment 1. This segment is 26.2 miles long and crosses milder grades than Donnelly Alternative Segment 1, but faces more difficult geotechnical constraints (e.g. XXXXX) than the other Donnelly alternative. It would require the construction of 2 major bridges, 2 small bridges and 44 culverts, but does not cross the Delta Creek paleochannel.

South Common Segment

This segment would connect the two Donnelly Alternative Segments to the Delta Alternative Segments described below (see Figure 2.2-8). The segment begins approximately 4 miles east of Delta Creek and runs roughly parallel to the Tanana River until the river curves southerly, just north of Delta Junction. The segment is 10.5 miles long.

Delta Alternative Segments

SEA is considering two alternative segments for the Delta area (see Figure 2.2-9). Each of these segments crosses the Delta River: one north and one south of Delta Junction. The alternative segments meet at the end of the alignment about 3 miles west of the Tanana River, parallel to the Alaska Highway.

2.2.4 Alternatives Eliminated from Detailed Study

Section Redacted

Alignment Nomenclature used in ARRC and SEA Publications:

In the distribution of the draft scope of study for the NRE EIS, alignments were named by whether they were located north or south of the Tanana River Crossing at Flag Hill. Alignments were designated with an N for north and an S for south. Each alignment was further distinguished by a number and possibly a letter.

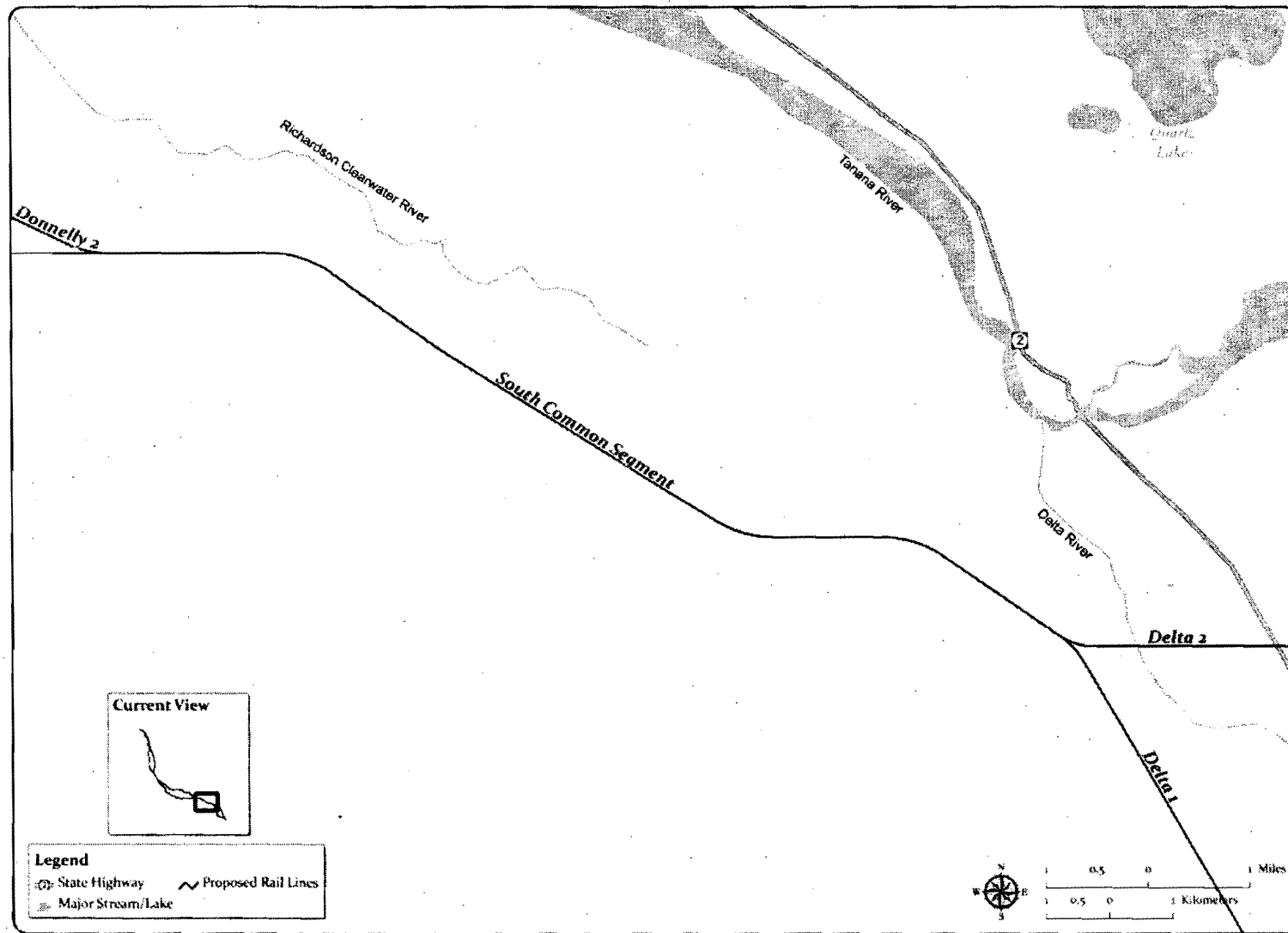


Figure 2.2-8
South Common Segment and Alternative Segments Within Map Area 5

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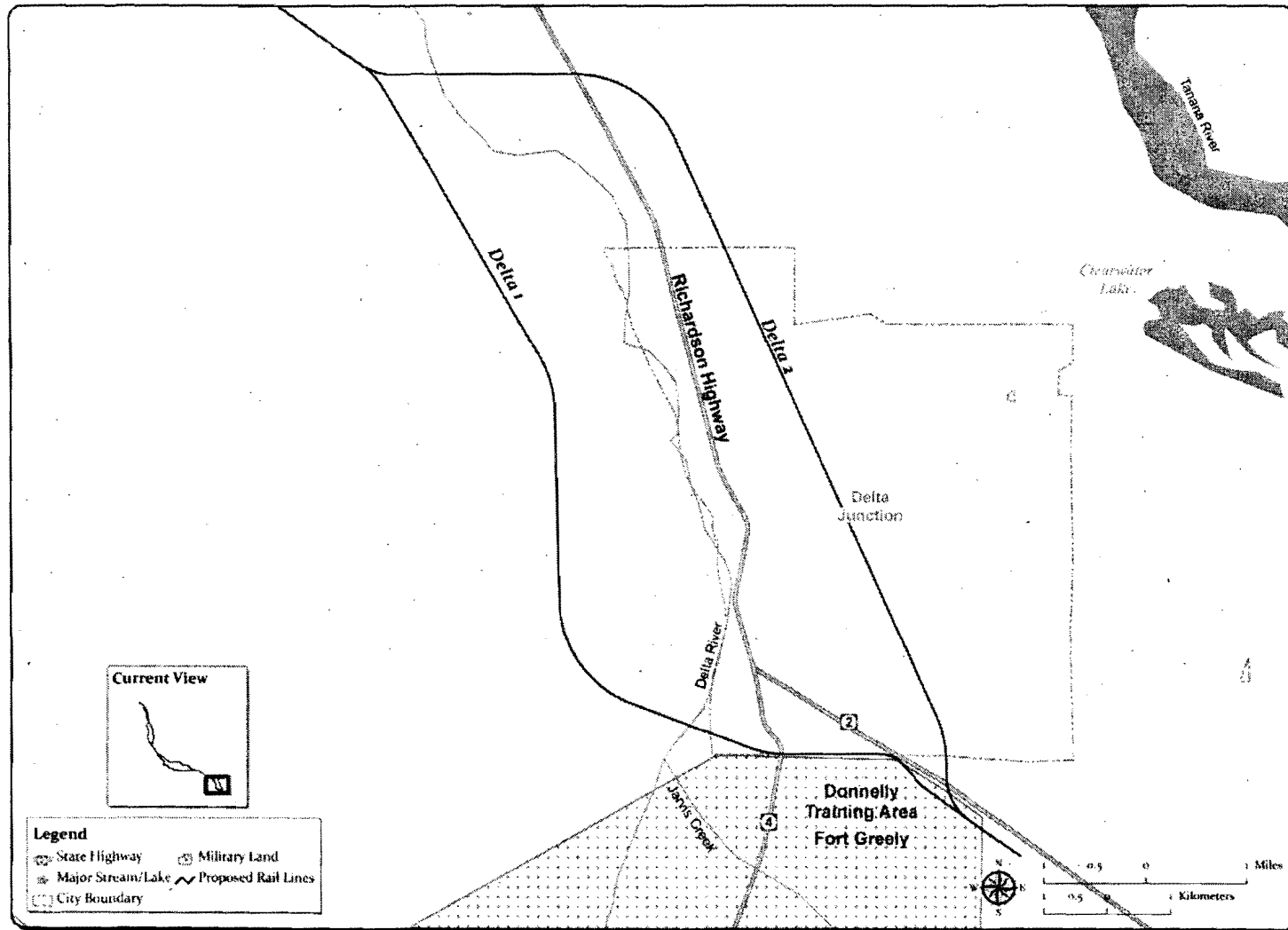


Figure 2.2-9
Delta Alternative Segments in Map Area 6

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2.2.5 Rail Construction

Construction Schedule

The timeframe for construction would depend partially on funding which could lead to two construction scenarios: a full construction scenario and a phased construction scenario.

Under a full construction scenario, construction would begin at both ends of the alignment from North Pole and Delta Junction and meet near the Little Delta River or Delta Creek crossing. ARRC anticipates that the project would be finished in 3 to 4 years under this scenario.

With a phased scenario, construction of the Tanana River Bridge may start prior to railroad construction due to the long lead time associated with the bridge spans and a logistical need to complete the bridge early in the project to facilitate construction of the rail line on the southwest side of the Tanana River. Under this scenario, the Tanana River Bridge may be constructed several months or years before the rail line is constructed. Because the Tanana River Bridge would be dual modal, vehicular traffic such as the U.S. Army's Stryker Brigade Combat Team would be able to use the bridge to access training areas on the southwest side of the Tanana River prior to completion of the rail line. Access over the dual-modal bridge to the west side of the Tanana River would be controlled by the military after the rail line is completed.

With either approach, construction would be conducted throughout the year, although severe weather would limit winter-time construction to land clearing activities, most bridge construction, and interior work associated with facility buildings. The specific timeframe and sequence of construction would depend on funding, final design, and permit conditions, such as requirements to avoid sensitive breeding periods for migratory birds and raptors and when salmon redds are present.

Right-of-Way

Unless otherwise indicated, construction activities would occur within the 200-foot right-of-way. For the purpose of analysis in this Draft EIS, it is assumed that the entire right-of-way would be permanently cleared for construction and then operations; however, some areas might not require full use of the right-of-way.

Rail Line Access Roads

For rail line construction and post-construction operations and maintenance, ARRC would build a permanent access road parallel to the rail alignment within the 200-foot right-of-way. The access road would be constructed before the rail line and would be used for construction of the rail line.

On the east side of the Tanana River, where access to the rail line construction area would be possible from existing roads, a 13-foot-wide gravel access road would be constructed. The road would be offset from the centerline of the rail line by 12 feet.

Salmon redds are nests of eggs buried in stream gravel. Redds contain many eggs that must stay buried in the gravel for about 3 months in order to hatch.

Ballast is the coarse rock that is placed under the railroad tracks to support the railroad ties and improve drainage along the rail line.

Subballast is the layer of crushed gravel that is used as a base for the ballast for the purpose of load distribution and drainage.

1 On the west side of the Tanana River, which is a remote area without permanent
2 road infrastructure, a 24-foot-wide permanent access road would be constructed
3 along the rail line. Because the area is remote, a larger access road would be
4 required to accommodate large construction vehicles. Construction vehicles on
5 the east side of the Tanana River can access the right-of-way at several points
6 from existing roads. In general this road would be offset from the centerline of
7 the rail line by at least 40 feet; however, in difficult terrain this offset may be
8 greater. The road would require vehicle bridges and/or culverts for all stream
9 crossings. These bridges are described in more detail below.

10 ARRC would not maintain these roads as public roads. The military may use the
11 access road on the west side of the Tanana River to access training areas.

12 **Acquisition of Materials for Rail Line Construction**

13 **Ballast, subballast**, concrete rail ties, and rail would be required for construction
14 of the proposed rail line. This section briefly describes the acquisition and use of
15 these materials.

16 Approximately 491,000 cubic yards of ballast would be needed along the rail line
17 ARRC's construction contractor would obtain ballast from existing commercial
18 quarries and/or ARRC's existing quarry in Curry, Alaska. Ballast would be
19 transported from existing quarries by rail to the project area.

20 Approximately 600,000 cubic yards of subballast would be needed along the rail
21 line. ARRC would obtain subballast primarily from materials excavated during
22 rail-line bed construction and from **borrow areas** established along the rail line
23 right-of-way. These borrow areas are estimated to occur at approximately 2.5-
24 mile intervals along the rail line. The sites would cover approximately 17 acres
25 and reach excavation depths up to 20 feet. Some stripping of vegetation and
26 organic soils would be required to obtain the material. In areas with high
27 groundwater tables, a dragline might be required to excavate below the water
28 table, but generally the excavation would be completed with off-road scrapers.

29 The exact locations of the borrow areas would be identified as part of the final
30 design. Some of the borrow areas might not be required, but ARRC plans to
31 maintain short intervals between sites to decrease average haul distance. Any
32 excess material from these activities would be distributed evenly along the
33 embankments as nonstructural fill.

34 ARRC proposes to use glacial streams to acquire granular construction material.
35 These sites would be located in glacial stream crossings on the south and west
36 side of the Tanana River, including the Little Delta River, Delta Creek, and Delta
37 River. Large quantities of granular material would be available at these locations
38 as glacial streams provide continuous replacement. Each site would cover
39 approximately 20 acres on each river.

40 ARRC would obtain concrete rail ties and rail from commercial sources. These
41 materials would be shipped to the project area by rail. The rail would be welded
42 into strings at a portable welding plant associated with the Eielson construction
43 staging area (described below).

1 Rail Bed Construction

2 Before any track could be placed, ARRC would construct a suitable roadbed.
3 The roadbed would form the base upon which the ballast, concrete rail ties, and
4 rail would be laid. Construction of the roadbed would require clearing,
5 excavating earth and rock on previously undisturbed lands, and removing and
6 stockpiling topsoil where needed. Construction would require both cuts and fills.
7 Suitable material excavated from cuts would be used as fill material in other
8 areas.

9 Track Construction

10 Track construction would consist of placing concrete ties, rail, and ballast on top
11 of the rail roadbed. First the concrete ties would be placed on the subballast.
12 ARRC would then use special equipment to unload and secure the welded rail
13 strings onto the concrete ties. ARRC would then unload ballast from rail ballast
14 cars and dump ballast evenly along the skeleton track. Equipment would then be
15 used to raise the rail line until the proper ballast depth is achieved.

16 Construction Staging Areas

17 The proposed rail line might require construction staging areas to store material,
18 weld sections of the rail line, and otherwise support rail construction activities.
19 These staging areas would be outside the 200-foot right-of-way. SEA is
20 considering the impacts of two construction staging areas that were identified by
21 ARRC. The exact location of each of these staging areas could depend on which
22 alternative segment might be selected.

23 The Eielson Construction Staging Area would cover approximately 140 acres at a
24 site on the North Common Segment. The site would be south of the Chena
25 Overflow Bridge and would have road access to the Richardson Highway and
26 existing Eielson Branch rail line. The site would be used for the rail welding
27 operation and/or storage. The rail welding operation would involve welding 50-
28 foot rail sections into quarter-mile strings. It is possible that this site would
29 include a construction camp with space for recreational vehicles (RVs).

30 The second staging area, the Delta Construction Staging Area, would cover
31 approximately 40 acres along the South Common Segment. This site would be
32 used for staging, storing, and maintaining earth-moving equipment as well as
33 construction camp facilities.

34 Along with these staging areas, ARRC indicated that there was potential for
35 material storage at the storage yard at the Alaska Railroad Depot in Fairbanks.
36 Construction material would be stored here until it is needed at the project site.
37 This would limit the need for additional storage areas along the proposed
38 alignment.

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PLACEHOLDER FOR A POTENTIAL FIGURE

1 Construction Camps

2 ARRC has indicated that because construction of the proposed rail line would
3 occur in an area with a limited workforce and infrastructure, it anticipates that up
4 to three construction camps would be required. Such camps would provide
5 housing for workers and a logistical base to conduct construction activities. The
6 camps would include sleeping quarters, a cooking area, and a well for water.

7 The Eielson Construction Camp would be collocated with the Eielson
8 Construction Staging Area described above. The camp would be located along
9 the North Common Segment and would also contain space for RV facilities.

10 The Tanana/Donnelly Construction Camp would possibly be collocated with a
11 siding for the Tanana Flats Training Area. The 40-acre camp would be a
12 combined construction camp with RV facilities and an area for staging and
13 maintenance of earth-moving equipment. These RV facilities may be in addition
14 to constructed sleeping quarters. Although the exact location has not been
15 determined, the site would be located near the southern Tanana River crossing
16 alternative and would be closest to either the Donnelly Alternative Segments 1
17 and 2 or the Central Common Segment.

18 The Big Delta Construction Camp would be located along the South Common
19 Segment and would cover 40 acres, although the exact location has not been
20 identified by ARRC. The camp would be used until one of the Delta River
21 bridge alternatives is constructed. It would contain an area for RV facilities and
22 could be collocated with a construction staging area.

23 Bridges and Culverts

24 Rail bridges and **culverts** would be required for crossing water bodies, including
25 streams, rivers, and some wetlands. As discussed in greater detail in Chapter 4
26 (water resources), stream and river crossings are categorized as "large" or
27 "small" depending on the size and hydrologic characteristics of the channel (see
28 Table 2.2-2). The proposed rail line would require construction of major rail
29 bridge crossings of the Tanana River, Little Delta River, Delta Creek, Delta
30 River, and—for one segment alternative—the Salcha River. Major rail bridges
31 would include a combination of 127-foot main spans (for the Tanana River
32 crossing), and combinations of 75-foot and 35-foot spans, and abutments (see
33 Figures 2.5-2 through 2.5-5). Numerous other crossings of smaller water systems
34 would also be required. Small rail bridges would range between 40 and 390 feet
35 in length and would include a combination of shorter to medium span lengths.

36 Temporary bridges or scaffolding might be needed to aid in construction of some
37 of the bridges. These structures would be removed after bridge construction is
38 completed.

39 At a minimum, large rail bridges would be designed for a 100-year flood to pass
40 through with less than 1 foot of rise in the tail-water elevation. At a maximum,
41 large rail bridges would span a channel's width, as measured from vegetation to
42 vegetation. The final bridge lengths would be determined during the final design
43 process. Small bridges and culverts would also be designed for the 100-year
44 flood.

Construction camps are areas along the rail alignment that could be used as temporary residences for construction crews, material and equipment storage areas, and concrete production areas. Such camps would be used during rail line construction and would be far from population centers

A **culvert** is a drain or channel crossing under a railroad or road that allows passage of water.

A **100-year flood** is a flood stage that has a one percent annual probability of occurring.

The **tail-water elevation** is the elevation of the water surface at the exit of the bridge or culvert.

ARRC would use prefabricated bridge sections for rail bridges to the greatest extent possible to limit the duration of bridge construction and area required for staging. Existing manufacturers would supply the bridge sections, additional steel, and concrete required for bridge construction.

Table 2.2-2
Rail and Vehicular Bridges and Culverts by Alternative Segment

Alternative Segment	Rail			Vehicle		Total bridges	Total culverts
	Small bridges	Large bridges	Culverts	Bridges	Culverts		
North Common	1	0	1	0	0	1	1
Eielson 1	1	0	13	0	0	1	13
Eielson 2	3	0	10	0	0	3	10
Eielson 3	3	0	14	0	0	3	14
Salcha 1	3	1	20	3	9	7	29
Salcha 2	8	2	5	4	6	14	11
Central Common	2	0	11	2	11	2	11
Donnelly 1	5	2	36	7	36	7	36
Donnelly 2	2	2	44	4	44	4	44
South Common	2	0	13	2	13	2	13
Delta 1	0	1	1	0	0	1	0
Delta 2	0	1	0	0	0	1	0
Minimum for entire rail line	11	4	76	11	66	27	142
Maximum for entire rail line	21	5	104	13	77	41	181

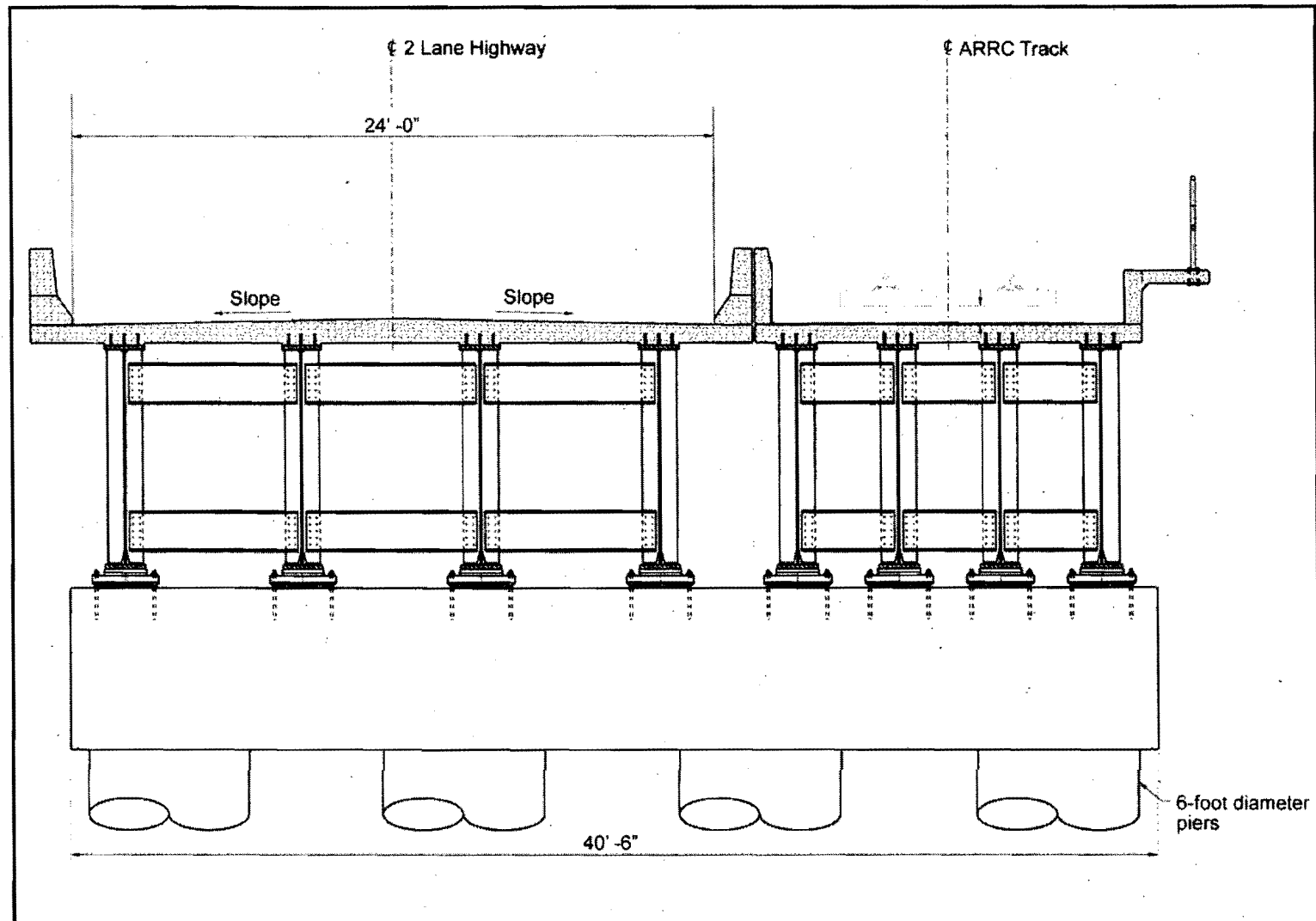
ARRC would start constructing bridges and large culverts before other infrastructure because they would take longer to construct and would be needed for construction activity. Most bridge foundation work likely would take place during the winter, when frozen conditions would facilitate access across rivers and avoid the need for temporary construction bridges.

Each bridge would require a bridge staging area. Most bridge staging areas would require approximately 1 acre along the closest alternative segment and would likely be within the 200-foot right-of-way. The staging areas for the Salcha Alternative Segment 1 and Salcha Alternative Segment 2 Tanana River crossings would each cover approximately 5.7 acres and could extend outside of the 200 foot right-of-way.

Regardless of location, the Tanana River Bridge would be a dual-modal bridge capable of providing both rail and vehicular access across the Tanana River. A 24-foot-wide road would be placed adjacent to the track and separated by concrete dividers (see Figures 2.5-2 and 2.5-3). The approach to the vehicle lane would loop under the bridge to avoid the need for an at-grade crossing of the rail line. Access to the Tanana River Bridge for the Salcha Alternative Segment 1 would be from modified existing private roads off the Old Richardson Highway (see Figure 2.5-6). Access to the Tanana River Bridge at the Salcha Alternative Segment 2 would be from the Old Valdez Trail. ARRC would pave the trail and

1 widen it to 24 feet. The loop approach to the bridge's vehicle lane would
2 involve new road construction beyond the existing trail and an underpass of the
3 rail line.
4
5

1



2
3
4
5

Figure 2.5-2
Typical Cross Section of the Tanana River Bridge

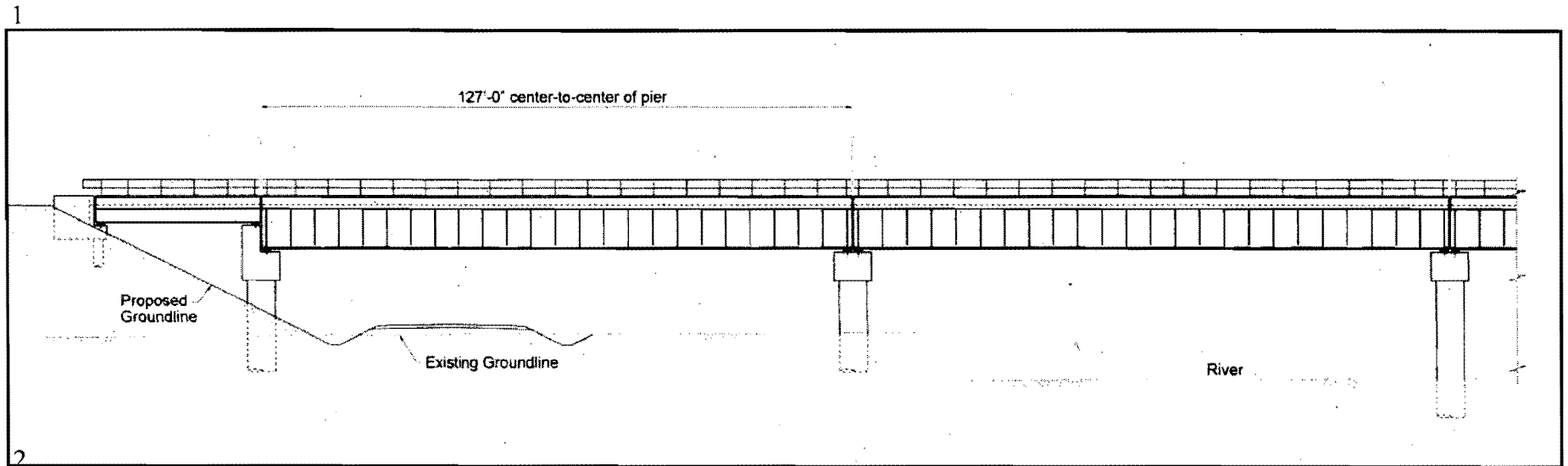


Figure 2.5-3
Typical Profile of the Tanana River Bridge

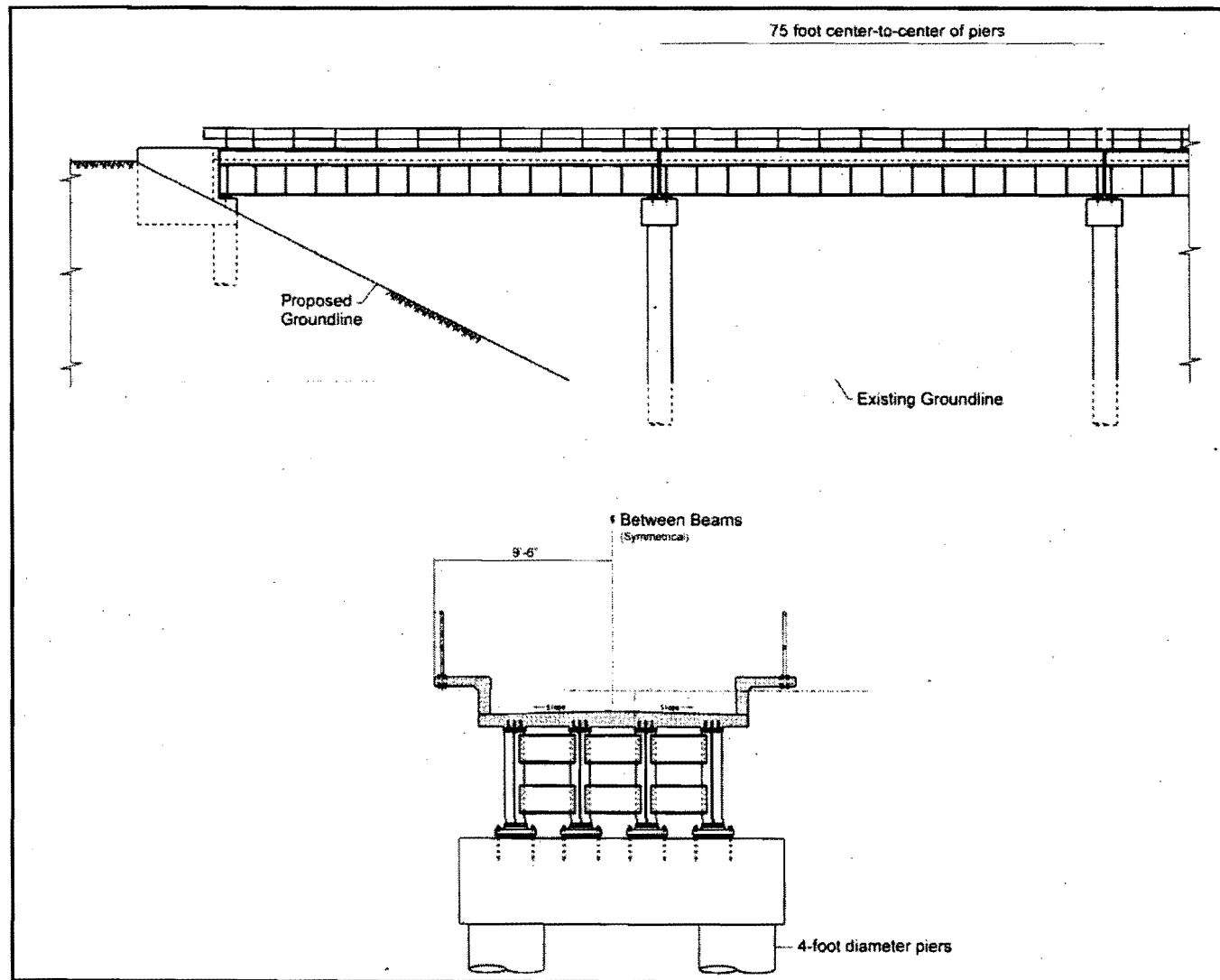


Figure 2.5-4
Typical Profile (top) and Cross Section (bottom) of a 75-foot-span Bridge

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Vehicular bridges would be required during construction for the movement of equipment, materials, and labor along the project site along the west side of the Tanana River. Vehicular bridges for the access road would not be needed on the east side of the river. Rail bridges would not be wide enough to accommodate large earth-moving equipment (greater than 18-feet wide) and would not be useable for vehicles once track is placed on them. The vehicular bridge spans would be equal to or wider than the rail bridge spans. The rail line would include between 8 and 11 vehicle bridges. ARRC would use prefabricated spans obtained from commercial sources placed on pile piers and abutments. Following construction, vehicular bridges would be left in place for the long-term maintenance of the operating rail line.

Culverts would be built into the rail or vehicle roadbed to allow water to flow under the rail line and access road. The project would require culverts at between 136 and 172 locations for the rail line and access roads. Culverts would be designed to allow fish passage.

Grade Crossings

To maintain access to existing public and private roads and trails across the rail line, ARRC would install grade crossings where the rail line would cross a roadway. In places where the rail line would cross the Alaska or Richardson highways, ARRC proposes to grade-separate the crossings. Where the rail line would cross paved, public roadways, the routes would cross at grade and active warning devices, such as flashing lights and gates, would be installed. Where the rail line would cross unpaved roads and private crossings, ARRC would install passive warning devices such as crossbucks and stop signs.

In locations where ARRC would construct grade-separated crossings for the Alaska and Richardson highways, additional staging work spaces outside the 200-foot right-of-way likely would be required.

2.2.6 Rail Operations and Support Facilities

The Proposed Action includes the construction and operation of several rail and rail support facilities that are required for proper operation of the proposed rail line. These permanent facilities would include:

- A passenger facility;
- Communication towers; and
- Track sidings.

These facilities would be constructed at the same time as the rail line.

Shippers might want to construct offloading facilities along the proposed rail line; however, no offloading facilities are being proposed at this time.

Passenger Facility

The Proposed Action includes a passenger depot in Delta Junction. ARRC would construct the depot according to FTA guidelines regarding passenger accommodation and platform height. This facility would likely be co-located with the end-of-track facilities. The passenger station would be approximately 1

- 1 acre, including an access road and parking area; provide protection from the
- 2 weather; and possibly accommodate automated ticketing.

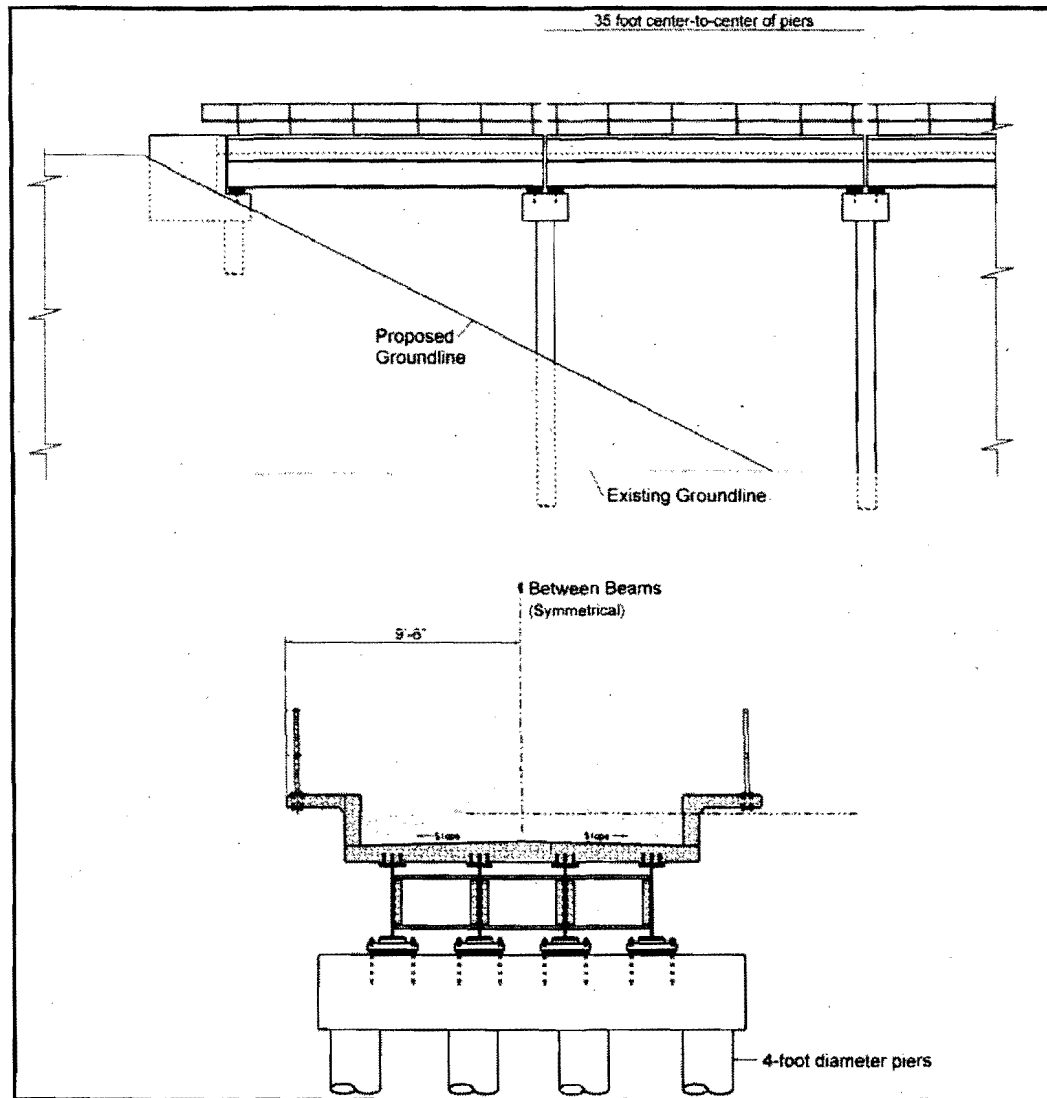


Figure 2.5-5
Typical Profile (top) and Cross Section (bottom) of a 35-foot-span Bridge

1
2
3
4

1
2
3
4

Figure 2.5-6
Access Road to Salcha Alternative Segment 1 Crossing of Tanana River
[Received figure from ARRC – need to incorporate]

1
2
3
4
5

Figure 2.5-7
Access Road to Salcha Alternative Segment 2 Crossing at Tanana River
[Received figure from ARRC – need to incorporate]

Communication Towers

Communication towers would be situated at six locations along the proposed rail line. ARRC would construct three new tower sites along Moose Creek Bluff, Site A, and Site B (see Figure 2.2-1). Each new tower site would cover approximately 0.2 acre and would have a maximum height of 180 feet. The sites would require creation of access roads if they are not accessible by existing roads. If a site is remote, there would be helicopter access rather than road access for construction and operation.

ARRC also proposes to use existing state of Alaska towers at three locations: Harding Lake, Canyon Creek, and Delta Junction.

- **Moose Creek Bluff Communication Tower** would be a new tower located near the North Common Segment, co-located with the Eielson Construction Staging Area (see Figure 2.5-8). This site would require a permanent new access road within the Eielson Construction Staging Area.
- **Site A Communication Tower** would be a new tower located near the Salcha Alternative Alignment 1 in the Tanana Flats Training Area (or in ADNR land). This site would require a permanent access road.
- **Harding Lake Communication Tower** is an existing tower located on Flag Hill, near Salcha Alternative Segment 2. This site would use existing access roads.
- **Canyon Creek Communication Tower** is an existing tower along the Richardson Highway between the Salcha and Big Delta communities. This site would use existing access roads.
- **Site B Communication Tower** would be a new tower located near the South Common Segment, would be situated on high ground near the siding south of Delta Creek. This tower would have an access road connecting from a DNR winter trail.
- **Delta Junction Communication Tower** is an existing tower located near Delta Alternative Segment 2, on high ground northeast of the terminus. This site would use existing access roads.

[Placeholder for Figure 2.5-8. This figure will show the communication tower locations]

Track Sidings

ARRC would construct up to seven 6,200-foot sidings to allow train passage and/or access to rail services. The ARRC design and operation criteria indicate that sidings should be provided at every 20 minutes of running time along the route. Siding would be placed, where possible, on tangent sections of the alignment. All sidings would be within the 200-foot right-of-way. Two of the seven sidings might be located in conjunction with potential offloading facilities for the military at the Tanana Flats Training Area and Donnelly West Training Area.

Offload Facilities

ARRC anticipates that the military might need offloading facilities along the NRE. These facilities could be located near the rail line terminus in Delta

Junction, on the west side of the Tanana River just past the Tanana River Bridge, and near the Donnelly Training Area along Donnelly Alternative Segments 1 or 2.

The proposed offload facilities likely would be similar in size to the proposed Fort Wainwright offloading facility, which would be approximately 70 acres (USAGAK, 2007). There would be no utilities at offloading facilities on the west side of the river, and additional storage areas potentially would be needed for fuel and/or other liquids. If the military decides that it needs offloading facilities, it would address them through separate NEPA documentation.

Rail Operations and Traffic

After construction of the rail line, trains could transport commercial freight, military equipment and supplies, and passengers. Transport of military equipment, supplies, and personnel could support the operations of the U.S. Army at the Tanana Flats and Donnelly training areas. Commercial freight could include:

- Aggregate;
- Agricultural products;
- Building supplies;
- Fertilizer;
- Forest products; and
- Petroleum products.

Military shipments could include:

- Building supplies;
- Equipment;
- Fuel;
- Munitions;
- Troop food supplies;
- Personnel; and
- Vehicles, including Stryker vehicles.

Train frequency would vary but ARRC anticipates an average of approximately five round-trip trains (both loaded and empty) per day. Table 2.2-3 shows the frequency based upon type of service the train would provide. Passenger service would involve two roundtrips per day between the Fairbanks Intermodal Center and Delta Junction. Military traffic for training activities is assumed to originate at Fort Wainwright's offloading facility and travel to the Tanana Flats and Donnelly training areas. Train traffic between the Port of Anchorage and Fort Wainwright for Department of Defense (DoD) forces outside of Alaska is assumed to not change as a result of construction and operation of the NRE.

Table 2.2-3
Train Frequency

Type of Service	Round Trip Frequency (trains/year)
U.S. Army Alaska Forces	56
DoD Forces Outside of Alaska	56

Regular DoD Training Movements	96
Local Freight Service	200
Passenger Service	1,440
Total Trains	1,848

Source: ARRC Summary of Freight and Passenger Operation, 2005

Some military traffic might elect not to access the Tanana Flats or Donnelly training areas by rail and instead access the training areas on the west side of the Tanana River using the vehicular portion of the dual-modal Tanana River Bridge. In these instances, the military traffic would travel southward on the Richardson Highway from the Fort Wainwright Main Post or Eielson Air Force Base to the access road for the Tanana River Bridge. The distance traveled on the Richardson Highway would depend on which Salcha Alternative Segment is selected. Once on the west side of the Tanana River, the military would use existing trails and/or the access road parallel to the rail line to access the training areas.

Train lengths would vary depending on whether ARRC is transporting passengers or commercial and military freight. ARRC estimates that passenger train lengths would be 230 feet or less depending on the type of equipment used. For passenger service, ARRC may use a DMU or a locomotive with two coach cars. Military and commercial freight trains would be approximately 6,000 feet long.

Maintenance of the Rail Line

ARRC would conduct periodic maintenance and inspections to ensure operation of a safe and reliable rail line. The primary maintenance activities would include signal testing and inspection; minor rail, tie, and turnout replacement; and routine ballasting and surfacing tasks. Additional activities would be performed on an as-needed basis and would include vegetation control, snow removal, and vehicle and equipment maintenance.

2.3 Comparison of Environmental Impacts

[Will be written after impact analyses are completed]