

1.0 INTRODUCTION

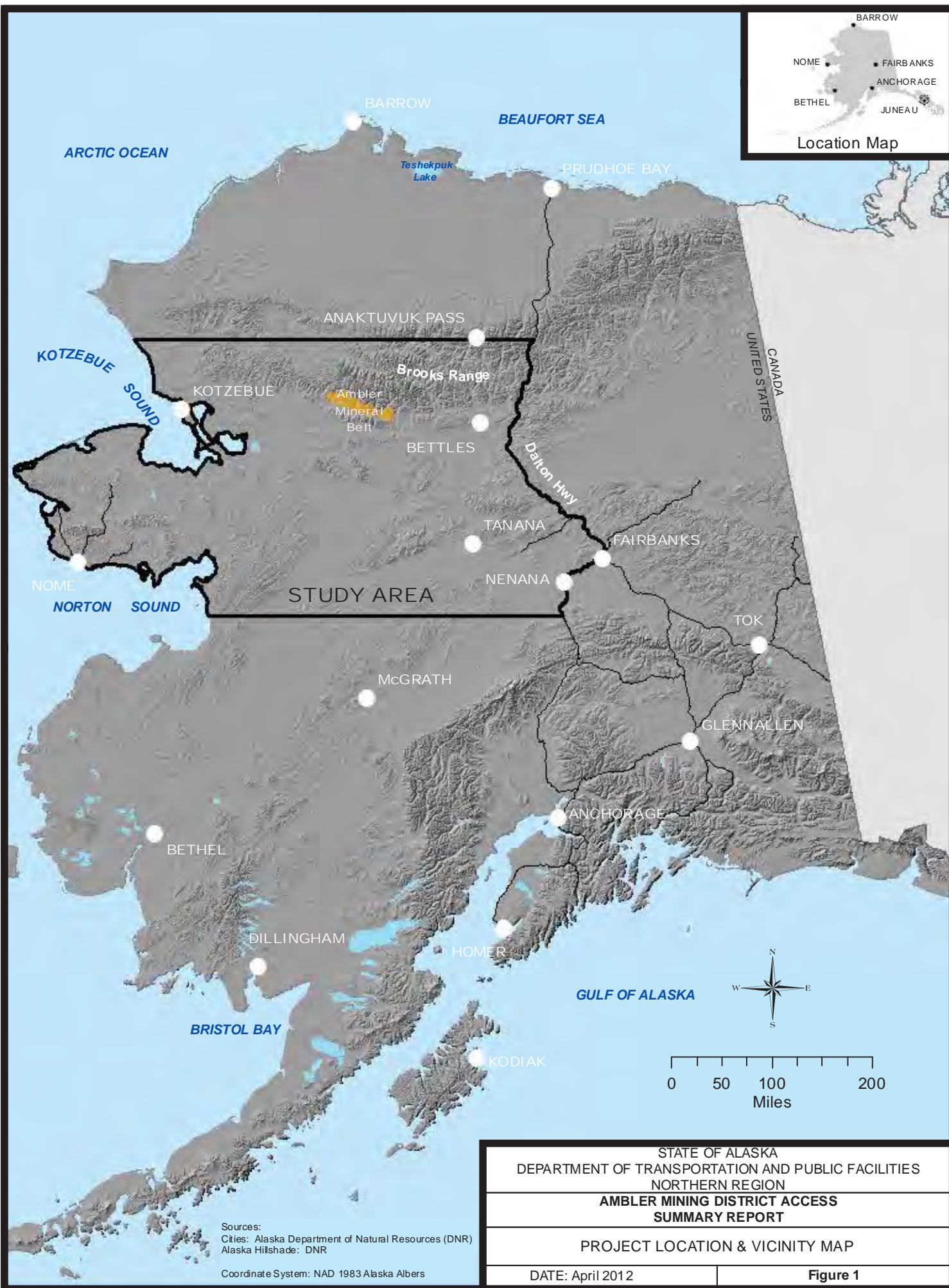
The Ambler Mining District Access project will identify, design, and construct a transportation corridor from the Ambler mineral belt to either a port location on the west coast of Alaska or the surface transportation system in Alaska's Interior. Both road and rail options are being evaluated. The selected corridor is intended to provide surface transportation access to state lands and facilitate exploration and development of mineral resources along the Ambler mineral belt.

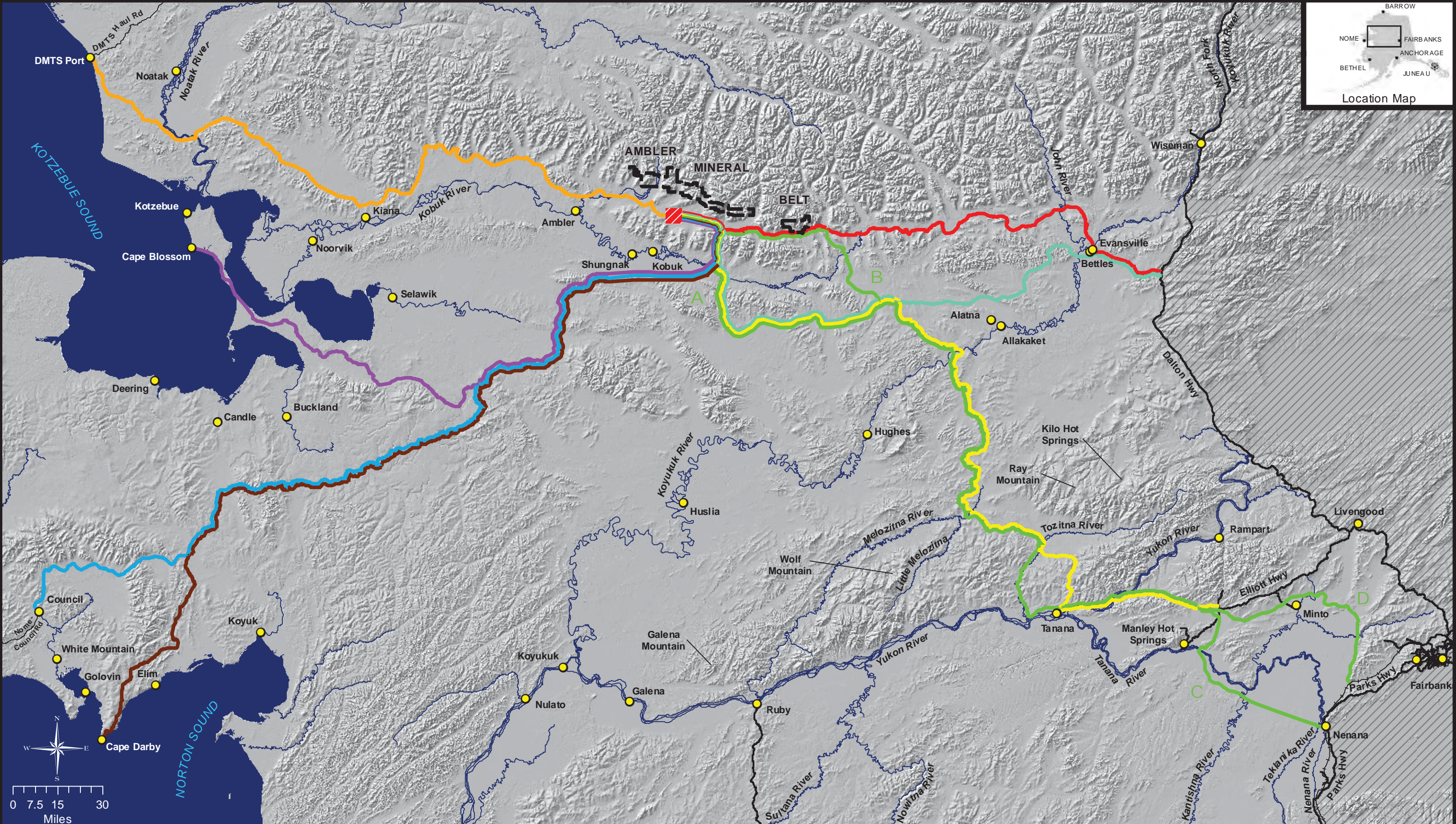
The South Flank of the Brooks Range contains extensive mineral resources. Limited exploration efforts since the 1950's have identified significant resources of copper and other base metals (Hawley and Vant, 2009). Exploration and development of these deposits has been economically and logistically curtailed by the lack of transportation infrastructure.

The project study area extends from the southern face of the Brooks Range southward to Nenana, and from the Dalton Highway to Alaska's west coast (Figure 1). Eight potential corridors were initially identified within the project study area (Figure 2); Brooks East Corridor, Kanuti Flats Corridor, Elliott Highway Corridor, Parks Highway Railroad Corridor, Delong Mountain Transportation System (DMTS) Port Corridor, Cape Blossom Corridor, Selawik Flats Corridor, and Cape Darby Corridor. All eight corridors begin at a staging area in the Cosmos Hills just north of Kobuk. Further study led to the beginning point changing from the staging area to a gravel source on Ambler River.

This Summary Report compiles information collected and presented in separate technical memoranda that address design criteria, construction cost, hydrology, geotechnical, and environmental considerations (DOWL HKM, 2011a through 2011g; DOWL HKM, 2012). The technical memoranda are included on a compact disk (CD) at the back of this report. In addition, this Summary Report ranks each corridor, based on specific criterion using a 5-point scoring system, to aid in the decision of which corridors to evaluate in greater detail.

The criterion evaluated and the scores assigned for each corridor are based on analysis of existing published information. Criterion and scores may change as field studies and additional community outreach are completed.





Communities and Place Names

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Railroad

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Existing Roads

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Water

Outside of Project Study Area

Ambler Mineral Belt

Proposed Staging Area

Brooks East Corridor
(Road Only)

Kanuti Flats Corridor
(Road Only)

Elliott Hwy Corridor
(Road Only)

Parks Hwy RR Corridor
(Rail Only)

DMTS Port Corridor
(Road & Rail)

Cape Blossom Corridor
(Road & Rail)

Selawik Flats Corridor
(Road & Rail)

Cape Darby Corridor
(Road & Rail)

Sources:
Communities and Place Names: DNR, DOT&PF
Existing Roads: DOT&PF
DMTS Haul Road: NANA
Railroad: DNR
Alaska Hillshade: DNR
Imagery: BDL WMS: Alaska Mapped
Coordinate System: NAD 1983 Alaska Albers

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
NORTHERN REGION

AMBLER MINING DISTRICT ACCESS
SUMMARY REPORT

PRELIMINARY CORRIDORS

DATE: April 2012

Figure 2

P:\Projects\06093\GIS\Summary Report\19April2012\Figure 2 Preliminary Corridors.mxd Apr 19, 2012 1:17:57 PM User: dleker

2.0 CORRIDOR MATRIX CRITERIA

Evaluation criteria were selected to develop a decisional matrix for the Ambler Mining District Access project. The purpose of the matrix is to assist decision-makers in evaluating each corridor and determining which corridor(s) are the most feasible alignment(s) for more detailed field study.

Twelve criteria were selected for evaluation based on community input, guidance from Alaska Department of Transportation and Public Facilities (DOT&PF) discussions, and preliminary research. These criteria include: (1) Corridor Length, (2) Federal Conservation System Units, (3) Wild and Scenic Rivers, (4) Salmon/Sheefish Rivers, (5) Caribou Habitat, (6) Threatened and Endangered Species/Critical Habitat Areas, (7) Wetland Habitats, (8) Availability of Material Sites, (9) Large Bridges, (10) Construction Cost, (11) Maintenance Costs, and (12) Special Considerations. Although the criteria have not been weighted to reflect any relative importance of each criterion, the matrix provides sufficient information for a preliminary comparison of the corridors.

Cultural and subsistence resources are also recognized as primary considerations, but were not included in the evaluation criteria since insufficient data is available to provide a meaningful corridor comparison. In-depth research on subsistence and cultural resources will be conducted on the corridor(s) deemed to be the most feasible.

The following sections describe these criteria and the information used to evaluate them.

2.1 Evaluation Criteria Descriptions

2.1.1 Corridor Length

Corridor length is correlated with construction and maintenance costs, as well as with the potential for impacts on many different resources including wetlands, subsistence, cultural, wildlife, habitat, etc. Generally, shorter corridor lengths are preferred.

Scoring Considerations

Each corridor is evaluated and scored based on its length. The corridors were scored using the following scale:

Corridors of ≤ 250 miles = 5

Corridors of 251-300 = 4

Corridors of 301-350 = 3

Corridors of 351-400 = 2

Corridors of 401-450 = 1

Corridors > 450 miles = 0

2.1.2 Federal Conservation System Units

Within the project study area, land ownership includes the State of Alaska, Federal Conservation System Units (CSU) (National Parks and Preserves, Wilderness Areas, and National Wildlife Refuges), non-CSU federal lands, Native lands (including regional and village corporation lands and Native allotments), and other private lands (Figure 3). The CSUs in the study area were established under the Alaska National Interest Lands Conservation Act (ANILCA). Crossing state-owned land is considered positive due to reduced time and cost for acquisition of rights-of-way. Crossing federal land, particularly CSUs, is considered a negative factor due to the additional time and cost associated with acquisition of federal lands. ANILCA recognized the need for access to the Ambler mineral belt by establishing a provision for access through Gates of the Arctic National Park and Preserve (GANPP). Thus, routes that cross GANPP are given the same score as routes that do not cross CSUs.

Scoring Considerations

Each corridor is evaluated and scored based on whether it crosses a CSU. Most corridors crossing a CSU are given a score of 0 due to the time and costs associated with acquisition of federal lands. Corridors that do not run through a CSU, or corridors that cross GANPP, are given a score of 5.

2.1.3 National Wild and Scenic Rivers

The National Wild and Scenic Rivers (WSRs) System was created to preserve certain rivers with outstanding natural, cultural, and recreational value in a free-flowing condition for the enjoyment of present and future generations. The WSR designation prohibits federal support for actions such as the construction of dams or other in-stream activities that would harm the river's free-flowing condition, water quality, or outstanding resource values. Most of the WSRs in the project study area were established under ANILCA. Designated WSRs within the project study areas include the following (Figure 3):

- North Fork of the Koyukuk WSR
- Kobuk WSR
- Selawik WSR
- Noatak WSR
- Salmon WSR
- Nowitna WSR
- Unalakleet WSR
- John WSR
- Alatna WSR

Scoring Considerations

Each corridor is evaluated and scored on whether it crosses a WSR. The corridors that cross a WSR are given a score of 0 and the corridors with no crossings are given a score of 5. Again, because ANILCA recognized the need for a corridor through GANPP and across the Kobuk WSR, corridors that cross the Kobuk WSR in GANPP are given a score of 5.

2.1.4 Salmon/Sheefish Rivers

Anadromous fish identified in the project study area include five different pacific salmon species, Dolly Varden, whitefish, and sheefish. These fish are important subsistence resources for local communities. The Alaska Department of Fish and Game's (ADF&G's) Anadromous Waters Catalog was reviewed to identify anadromous waters in the project study area. Since limited mapping of anadromous waters has occurred in remote areas, such as the project study area, it is likely that there are many anadromous waters in this area that have not been mapped. The likelihood of anadromous fish presence in unmapped streams was estimated by comparing gradients of mapped streams to interconnected unmapped streams. Those with gradients of 8% or less were assumed to have a high likelihood of supporting anadromous fish populations. Waters estimated to have a high likelihood of supporting anadromous fish are counted as

anadromous waters. Minimizing the number of anadromous waters crossed results in reduced impacts on subsistence, as well as reduced costs for fish passage structures, and less time for consultation and permitting.

Scoring Considerations

Each corridor is evaluated and scored on the number of anadromous waters crossed. The corridors were scored using the following scale:

Corridors with ≤ 50 crossings = 5

Corridors with 51 - 60 crossings = 4

Corridors with 61 - 70 crossings = 3

Corridors with 71 - 80 crossings = 2

Corridors with 81 - 90 crossings = 1

Corridors with ≥ 91 crossings = 0

2.1.5 Caribou Habitat

Caribou are an important subsistence resource for communities within the project study area. Five caribou herds are known to sometimes use portions of the study area: (1) Western Arctic Caribou Herd (WACH); (2) Teshekpuk Lake Caribou Herd; (3) Galena Mountain Herd; (4) Wolf Mountain Herd; and (5) Ray Mountain Herd. The WACH is the largest herd in Alaska and uses a substantial portion of the project study area for wintering and for migration. The other caribou herds are smaller and tend to occupy smaller portions of the project study area for shorter time periods. Although available information on the WACH is dated, WACH range maps published in the WACH Cooperative Management Plan and caribou range maps in the Bureau of Land Management's Kobuk-Seward Peninsula Resource Management Plan indicate that caribou use is more concentrated in the western portion of the project study area.

Scoring Considerations

Each corridor is evaluated and scored on caribou habitat crossed. Eastern corridors that cross relatively less caribou habitat are given a 5 rating, and western corridors that cross relatively more caribou habitat are given a 0.

2.1.6 Threatened and Endangered Species and Critical Habitat Areas

Four species designated as Threatened or Endangered are present in the project study area: (1) Steller's eider; (2) spectacled eider; (3) polar bear; and (4) bowhead whale. Eiders spend most of the year in marine waters. Steller's eiders migrate through coastal portions of the project study area to reach breeding grounds outside the project study area. Spectacled eiders molt offshore in Norton Sound along the western edge of the project study area. Polar bears concentrate along the coast during open water periods, when mating, and when rearing cubs. Bowhead whales move north along the coast as sea ice recedes during spring.

The project study area contains areas designated as critical habitat for spectacled eider and polar bear. The critical habitat for spectacled eider is located within the waters of Norton Sound in the southwest section of the project study area. Multiple shorelines in the western section of the project study area are designated critical habitat or no disturbance zones for polar bear.

Corridors that may affect any of these threatened or endangered species or areas of critical habitat are considered less desirable, since construction in these areas would require consultation with federal agencies on potential effects on the species.

Scoring Considerations

Corridors that are not expected to affect any threatened or endangered species or their habitat are given a score of 5. Corridors that may affect one threatened or endangered species or its critical habitat are given a score of 3. Corridors that may affect more than one species are given a score of 0.

2.1.7 Wetland Habitats

Wetland habitats are common across the study area and are afforded protection by the Clean Water Act, which requires avoidance, minimization and mitigation of impacts to wetland habitats. Wetland habitats were identified throughout the study area based primarily on the interpretation of aerial imagery. The extent of wetland coverage and length of potential intersection of each road and railroad corridor with wetland habitats were evaluated using the methods documented in the Wetlands Mapping for Preliminary Corridors Report (DOWL HKM, 2012). The study area for the desktop wetland mapping exercise was defined as a five mile

width surrounding the proposed corridor centerlines, for consistency with the Corridor Development Memorandum (DOWL HKM, 2011b). This information will be field verified once a preferred corridor is chosen.

Scoring Considerations

Each corridor was evaluated and scored based on the total miles of wetland habitat traversed. The corridors were scored using the following scale:

Intersection of ≤ 30 miles = 5

Intersection of 31-60 miles = 4

Intersection of 61-90 miles = 3

Intersection of 91-120 miles = 2

Intersection of 121-150 miles = 1

Intersections of > 150 miles = 0

2.1.8 Availability of Material Sites

A substantial portion of the construction and maintenance cost for surface transportation projects is related to the cost of finding, developing and transporting materials for embankments and foundations. Corridors that have material sites available every 10 miles are considered more favorable from a cost and constructability perspective than those that require importing materials from greater distances.

Scoring Considerations

Each corridor is evaluated and scored on the percent of the corridor that has a material site within 10 miles. Corridor scoring is based on the following:

$> 90\%$ of corridor has material sites every 10 miles = 5

81%-90% of corridor has material sites every 10 miles = 4

71%-80% of corridor has material sites every 10 miles = 3

61%-70% of corridor has material sites every 10 miles = 2

51%-60% of corridor has material sites every 10 miles = 1

$< 50\%$ of corridor has material sites every 10 miles = 0

2.1.9 Large Bridges

The project study area contains numerous rivers and streams that will require crossings. The number of large bridge crossings and total bridge lengths require special consideration since these factors account for around 50% of the estimated construction cost for the various corridors. Large bridges are classified as any bridge over 140 feet in length. Corridors with fewer large bridges and less total length of large bridges are likely to have lower construction and maintenance costs.

Scoring Considerations

Each corridor is evaluated and scored on the total length of large bridges needed. Corridor scoring is based on the following:

Corridors with <5,500 ft = 5

Corridors with 5,501- 6,000 ft = 4

Corridors with 6,001 - 7,000 ft = 3

Corridors with 7,001 - 8,000 ft = 2

Corridors with 8,001- 9,000 ft = 1

Corridors with >9,000 ft = 0

2.1.10 Construction Costs

Construction costs for each road and railroad corridor were evaluated using the design criteria documented in the Design Criteria Memorandum and unit prices documented in the Baseline Cost Memorandum (DOWL HKM, 2011c).

Roadway construction costs assume clearing, gravel surfacing, embankment, and mobilization. Also included in the roadway construction cost are truck turnouts, which are assumed to be located every 10 miles within each corridor. Construction costs for both road and rail include varying unit prices for embankment material based on the preliminary material source intervals set in the Geotechnical Memorandum (DOWL HKM, 2011d). Royalty costs of \$5 per cubic yard are added where appropriate to reflect the cost of materials coming from non-state lands. A 20% contingency was applied to all embankment costs.

Hydrologic Costs

Cost estimates for drainage structures along road and rail corridors were developed using the hydraulic design assumptions described in the Preliminary Hydrology Reconnaissance Memorandum (DOWL HKM, 2011e). Historical bid tabulations for Dalton Highway projects and other Northern Region projects were used to estimate unit costs.

Bridge Costs

Proposed corridors' overall bridge costs were estimated using unit prices for the three categories of bridge sizes (small, medium, and large). Unit prices per linear foot were developed for several conceptual and proprietary bridge designs to obtain a range of individual bridge costs.

Understanding that bridge costs will vary at each crossing location based on site-specific constraints, a representative value was selected from within the range of derived bridge costs. The 65th percentile cost was selected for determining unit costs. After deriving costs per linear foot for the three bridge categories, these unit costs were applied to the span lengths of the small (140 feet) and medium (500 feet) bridge categories to arrive at "per crossing" bridge costs. Large bridges were evaluated on a lineal foot basis.

Culvert Costs

Culvert costs were considered for rolled and structural plate corrugated steel pipe culverts ranging from 4 to 20 feet in diameter. Culverts with various wall thickness (gauges) were considered to account for varying cover requirements, with 8 to 16 gauge culverts evaluated for the small culverts (less than 10-foot diameter) and 5 to 12 gauge culverts evaluated for the large culverts (10- to 20-foot diameter). Material costs were derived assuming a 95-foot-long culvert which is an average culvert length for major drainage structures on the Dalton Highway.

Fish Passage Culvert Costs

Fish passage culverts were assumed to incur additional costs associated with the need for fish passage structures and material, bank stabilization, and labor for reconstruction of channel beds.

Scoring Considerations

Each corridor is evaluated and scored based on estimated construction cost (rounded to tens of millions). Corridors were scored using the following scale:

- Cost \leq \$500 Million = 5
- Cost $>$ \$500-750 Million = 4
- Cost $>$ \$750-1,000 Million = 3
- Cost $>$ \$1,000-1,250 Million = 2
- Cost $>$ \$1,250-1,500 Million = 1
- Cost \geq \$1,501 Million = 0

2.1.11 Maintenance Costs

Roadway Maintenance Costs

Maintenance costs for a roadway are assumed to be similar to Dalton Highway maintenance costs. A cost per mile was derived from data provided by DOT&PF's Dalton Highway maintenance section for FY10. The cost that is factored into each corridor is \$26,100 per mile.

Roadway Maintenance Camp Costs

Additional costs are added to each roadway corridor for initial construction and annual maintenance of road maintenance camps. Maintenance camps are assumed to be required every 60 miles. The life-cycle for each maintenance camp is assumed to be 20 years, which includes the initial camp construction cost and the annual cost to maintain the camp for the 20 year duration without major upgrades or renovations. The 20 year life-cycle cost for individual corridors is included in Appendices A, C, and D.

Initial construction cost for each maintenance camp is estimated at \$5.5 million, based on recent construction costs for a new maintenance facility at East Fork along the Dalton Highway. Table 1 details the assumed facility components and pricing.

Table 1: Road Maintenance Camp Construction Cost Summary

Maintenance Camp Component	Size	Total Cost
Warm storage facility	80' x 80' = 6,400 ft ²	\$4,800,000
Two prime power generators and supporting structure	672 ft ²	\$400,000
5-bedroom bunkhouse	24' x 60' = 1,440 ft ²	\$300,000
Total Maintenance Camp Cost		\$5,500,000

Estimated annual maintenance cost per camp is \$422,000. This annual cost is estimated using FY10 costs for several existing maintenance camps provided by DOT&PF. Average past maintenance costs are escalated by approximately \$90,000 per year due to increasing heating costs and larger sizes for newer facilities.

Railroad Maintenance Costs

Maintenance costs for rail corridors in Alaska are estimated using average costs reported by the Alaska Railroad Corporation (ARRC) in their 2010 Annual Report (ARRC, 2011) and discussions with ARRC staff. These approximated estimates are considered to be a best case scenario, as ARRC likely has lower costs per mile than an independent rail operator, due to substantial efficiencies of scale. Annual cost for rail maintenance is estimated at \$35,000 per mile.

Railroad Maintenance Camp Costs

Additional costs are added to each rail corridor for initial construction and annual maintenance of rail maintenance camps. Maintenance camps are assumed to be required every 100 miles.

Initial construction cost for each maintenance camp is estimated at \$2.5 million, based on a single pull-through maintenance structure and housing facilities for support staff. Table 2 details the assumed facility components and pricing.

Table 2: Rail Maintenance Camp Construction Cost Summary

Maintenance Camp Component	Total Cost
Two prime power generators and supporting structure	\$2,200,000
5-bedroom bunkhouse	\$300,000
Total Maintenance Camp Cost	\$2,500,000

Scoring Considerations

Each corridor is evaluated and scored based on estimated annual maintenance cost. Corridors were scored using the following scale:

Cost \leq \$8.5 Million = 5

Cost \$8.6-10.5 Million = 4

Cost \$10.6-12.5 Million = 3

Cost \$12.6-14.5 Million = 2

Cost \$14.6-16.5 Million = 1

Cost \geq \$16.6 Million = 0

2.1.12 Special Considerations

Three additional considerations are briefly discussed for each corridor, but are not included for scoring: port construction, railway operating costs, and large river crossings.

Port Construction

Corridors providing surface access to the Ambler mineral belt must connect to other transportation infrastructure at their termini. Corridors that head east from the Ambler mineral belt connect with either the state highway system or the Alaska Railroad system. Corridors that head west from the Ambler mineral belt connect to coastal areas that either have existing ports or have been identified as possible deep-water port locations. Corridors that connect with existing infrastructure are considered more favorable as the cost and complexities of designing and constructing new port facilities could result in substantial delays in achieving the project's goal to support exploration and development of mineral resources in the Ambler mineral belt.

Railway Operating Costs

Rail corridors would have additional costs associated with the daily operations of keeping the railway functional. Operation costs include equipment, fuel, labor and other costs associated with operating the railway. The operating costs were estimated using average costs reported by ARRC in their 2010 Annual Report (ARRC, 2011). Annual operating costs for the railway are estimated at \$25,700 per mile.

Very Large River Crossings

Crossing very large rivers such as the Yukon or Noatak Rivers presents more significant engineering and cost challenges than other rivers.

2.2 Evaluation Data Sources

Data used for corridor evaluations and comparisons in this Summary Report are documented in a number of preliminary reconnaissance memoranda (DOWL HKM, 2011a through 2011g). These reconnaissance studies were based on available data resources and have not been field

verified; the limitations of the data are outlined in the memoranda. Although the existing data is limited and generalized in nature, it provides information sufficient for a relative comparison of the proposed corridors.

3.0 INDIVIDUAL CORRIDOR ANALYSIS

The following sections summarize each corridor in relation to the 12 criteria identified earlier. Most corridors are assessed primarily as road corridors with rail considerations discussed in a final section on each corridor where rail is an option. For the Parks Highway Railroad Corridor, the corridor is assessed as a rail corridor only.

3.1 Brooks East Corridor

3.1.1 General Route Description

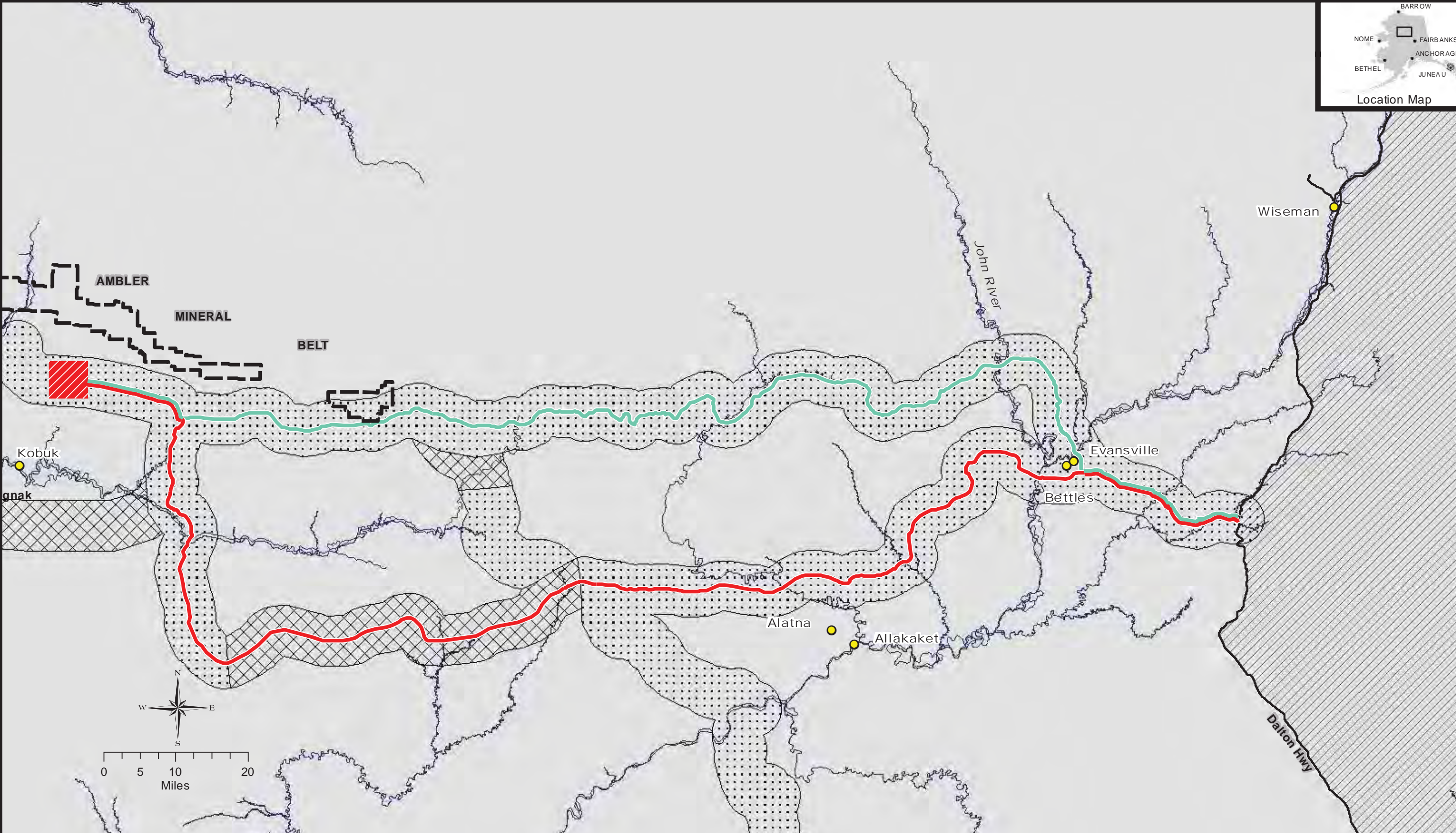
The Brooks East Corridor is the shortest option, measuring approximately 220 miles from the Ambler mineral belt to the Dalton Highway (Figures 4 and 5). The corridor leaves the Ambler mineral belt and travels east to the Dalton Highway, staying primarily in the foothills of the Brooks Range and crossing the lower portion of GANPP and the Kobuk WSR. The corridor connects to the Dalton Highway at Prospect Creek. The evaluation of this corridor is summarized in Table 3.

Table 3: Brooks East Corridor Evaluation

Criterion	Value	Score
Corridor Length (miles)	220	5
Federal CSU (unit/miles/percentage of corridor)	GANPP/26/11%	5 ¹
Wild and Scenic Rivers	Kobuk WSR	5 ¹
Salmon/Sheefish Rivers Total	26	
Mapped Anadromous	5	5
Assumed Anadromous	21	
Caribou Habitat	Less	5
Threatened/Endangered Species/Critical Habitat	None	5
Wetland Habitats (miles)	82	3
Material Site Availability (percent of corridor with material site within 10 miles)	100%	5
Total Large Bridges (number/length in ft)	13/5,000 ft	
Bridges Over 1,500 ft	None	5
Major Stream Crossings	161	
Construction Cost ² (in millions)	\$430	5
Annual Maintenance Cost (in millions)	\$8.5	5
Special Considerations	NA	NA
ANILCA Corridor through GANPP		
Total Score		53

1. Access through GANPP and across the Kobuk WSR was recognized under ANILCA.

2. Costs rounded to tens of millions.



<p>● Communities and Place Names</p> <p>— Existing Roads</p> <p>— Water</p> <p>▨ Outside of Project Study Area</p> <p>▧ Ambler Mineral Belt</p> <p>▤ Proposed Staging Area</p>		<p>— 1-Brooks East Corridor 220 Miles (Road Only)</p> <p>— 2-Kanuti Flats Corridor 240 Miles (Road Only)</p> <p>● Corridor Segments with Material Sites at Less than 10 Mile Intervals</p> <p>● Corridor Segments with Material Sites at Greater than 10 Mile Intervals</p>	<p>STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES NORTHERN REGION</p> <p>AMBLER MINING DISTRICT ACCESS SUMMARY REPORT</p> <p>EAST CORRIDORS MATERIAL SITE AVAILABILITY</p> <p>DATE: April 19, 2012</p> <p>Figure 5</p>
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Coordinate System: NAD 1983 Alaska Albers

3.1.2 Corridor Length

This corridor is 220 miles long; the shortest of the potential corridors. The corridor is given a score of 5 for this criterion.

3.1.3 Federal Conservation Systems

This corridor crosses through one CSU, GANPP. The corridor passes through the preserve portion of GANPP. The length of the corridor within the CSU is approximately 26 miles, or 11% of the corridor length. Although this corridor goes through GANPP, it also is given a score of 5 for this criterion since access through GANPP is addressed in ANILCA.

3.1.4 Wild and Scenic Rivers

This corridor crosses the Kobuk WSR. The crossing is approximately 440 feet long. This corridor is given a score of 5 for this criterion, given the recognition of access through GANPP in ANILCA.

3.1.5 Salmon/Sheefish Rivers

This corridor crosses 5 mapped anadromous streams and 21 streams assumed to be anadromous, for a total of 26. This is the lowest number of anadromous streams crossed by any corridor, so this corridor is given a score of 5 for this criterion.

3.1.6 Caribou Habitat

This corridor crosses through migratory areas and the outer range of the WACH. This corridor and other corridors that head east from the Ambler mineral belt cross less habitat for this major caribou herd than those corridors that go west, and are therefore given a score of 5 for this criterion.

3.1.7 Threatened and Endangered Species and Critical Habitat Areas

This corridor does not cross through areas where threatened or endangered species or critical habitat areas are found. Hence, the corridor is given a score of 5 for this criterion.

3.1.8 Wetland Habitats

This corridor crosses through 82 miles of habitat preliminarily mapped as wetlands and is given a score of 3 for this criterion.

3.1.9 Availability of Material Sites

This corridor has material sites available every 10 miles the entire length of the corridor, and is given a score of 5 for this criterion.

3.1.10 Large Bridges

This corridor has 161 major stream crossings, including 13 large bridges that span approximately 5,000 linear feet. This corridor has one of the lowest total lengths of large bridges, and is given a score of 5 for this criterion.

3.1.11 Construction Cost

The total estimated construction cost for this corridor is \$430 million (Appendix A). This is the lowest construction cost of any corridor, and the corridor is given a score of 5 on this criterion.

3.1.12 Maintenance Cost

Estimated annual maintenance cost for the Brooks East Corridor is approximately \$8.5 million. Initial maintenance camp construction and annual maintenance are summarized in Appendix A. This is the lowest annual maintenance cost for the corridors evaluated, and therefore the corridor is given a score of 5 on this criterion.

3.1.13 Special Considerations

None of the special considerations described in Section 2.1.12 apply to this corridor.

3.2 Kanuti Flats Corridor

3.2.1 General Route Description

This corridor is approximately 240 miles long and also extends from the Ambler mineral belt to the Dalton Highway (Figures 4 and 5). This corridor stays primarily in the lowlands south of the Brooks Range and south of GANPP. This corridor ties into Brooks East Corridor at the Prospect-Bettles Winter Trail, a few miles southeast of Evansville. The evaluation of this route is summarized in Table 4.

Table 4: Kanuti Flats Corridor Evaluation

Criterion	Value	Score
Corridor Length (miles)	240	5
Federal CSU (unit/miles/percentage of corridor)	None	5
Wild and Scenic Rivers	None	5
Salmon/Sheefish Rivers Total	54	
Mapped Anadromous	14	4
Assumed Anadromous	41	
Caribou Habitat	Less	5
Threatened/Endangered Species/Critical Habitat	None	5
Wetland Habitats (miles)	115	2
Material Site Availability (percent of corridor with material site within 10 miles)	75%	3
Total Large Bridges (number/length in ft)	14/5,440 ft	
Bridges Over 1,500 ft	None	5
Major Stream Crossings	212	
Construction Cost ¹ (in millions)	\$510	4
Annual Maintenance Cost (in millions)	\$9.1	4
Special Considerations	NA	NA
None		
Total Score		47

1. Costs rounded to tens of millions.

3.2.2 Corridor Length

This corridor is 240 miles long; one of the shortest of the potential corridors. The corridor is given a score of 5 for this criterion.

3.2.3 Federal Conservation Systems

This corridor does not cross through any CSUs, although it is in the vicinity of GANPP and the Kanuti National Wildlife Refuge (NWR). This corridor is given a score of 5 for this criterion.

3.2.4 Wild and Scenic Rivers

This corridor does not cross any WSRs. This corridor is given a score of 5 for this criterion.

3.2.5 Salmon/Sheefish Rivers

This corridor crosses 14 mapped anadromous streams and 41 streams assumed to be anadromous, for a total of 54. This is one of the lowest number of anadromous streams crossed by any corridor, so this corridor is given a score of 4 for this criterion.

3.2.6 Caribou Habitat

This corridor crosses through migratory areas and the outer range of the WACH. This corridor and other corridors that head east from the Ambler mineral belt cross less WACH habitat than corridors that head west and are given a score of 5 for this criterion.

3.2.7 Threatened and Endangered Species and Critical Habitat Areas

This corridor does not cross through areas where threatened or endangered species and critical habitat areas are found, and is given a score of 5 for this criterion.

3.2.8 Wetland Habitats

This corridor crosses through 115 miles of habitat preliminarily mapped as wetlands and is given a score of 2 for this criterion.

3.2.9 Availability of Material Sites

This corridor has material sites available every 10 miles for approximately 75% of the corridor, and is given a score of 3 for this criterion.

3.2.10 Large Bridges

This corridor has 212 major stream crossings, including 14 large bridges that span a total of 5,440 linear feet. This corridor has one of the lowest total lengths of large bridges, and is given a score of 5 for this criterion.

3.2.11 Construction Cost

The total estimated construction cost for this corridor is \$510 million (Appendix A). This is the second lowest construction cost of any corridor, and the corridor is given a score of 4 on this criterion.

3.2.12 Maintenance Cost

Estimated annual maintenance cost for the Kanuti Flats Corridor is approximately \$9.1 million. Initial maintenance camp construction and annual maintenance are summarized in Appendix A. This is the second lowest annual maintenance cost for the corridors evaluated; this corridor is given a score of 4 on this criterion.

3.2.13 Special Considerations

None of the special considerations described in Section 2.1.12 apply to this corridor.

3.3 **Elliott Highway Corridor**

3.3.1 General Route Description

This corridor is the longest road corridor at approximately 370 miles long (Figures 6 and 7). This corridor heads east from the Ambler mineral belt to Siruk Creek, approximately 15 miles east of the GANPP boundary. The corridor then heads south towards Tanana and then turns east and runs along the northern edge of the Yukon River, crossing the Yukon River north of Sixteenmile Lake. The corridor then continues east to the Elliott Highway near Eureka. The evaluation of this route is summarized in Table 5.

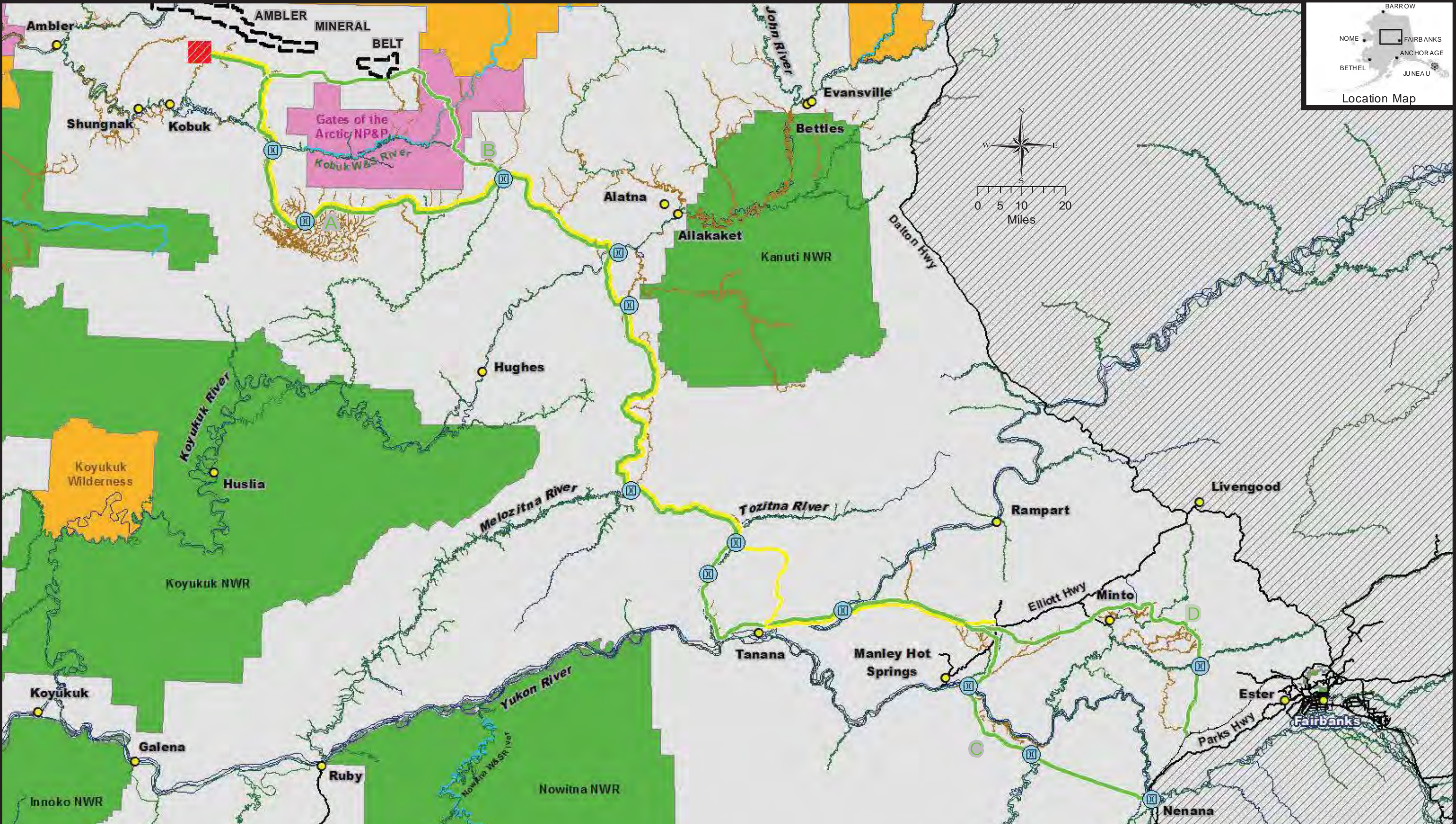
Table 5: Elliott Highway Corridor Evaluation

Criterion	Value	Score
Corridor Length (miles)	370	2
Federal CSU (unit/miles/percentage of corridor)	None	5
Wild and Scenic Rivers	None	5
Salmon/Sheefish Rivers	56	4
Mapped Anadromous	8	
Assumed Anadromous	48	
Caribou Habitat	Less	5
Threatened/Endangered Species/Critical Habitat	None	5
Wetland Habitats (miles)	88	3
Material Site Availability (percent of corridor with material site within 10 miles)	84%	4
Total Large Bridges (number/length in ft)	12/7,360 ft	2
Bridges Over 1,500 ft	Yukon River/2,720 ft	
Major Stream Crossings	251	
Construction Cost ¹ (in millions)	\$990	3
Annual Maintenance Cost (in millions)	\$13.5	2
Special Considerations	NA	NA
Yukon River Crossing		
Total Score		40

1. Costs rounded to tens of millions.

3.3.2 Corridor Length

This corridor is 370 miles long; this is the longest road corridor, but is shorter than the Parks Highway Railroad Corridors. The corridor is given a score of 2 for this criterion.



Communities and Place Names

Existing Roads

Railroad

Water

Outside of Project Study Area

Ambler Mineral Belt

Proposed Staging Area

3-Elliott Hwy Corridor
370 Miles (Road Only)

4-Parks Hwy RR Corridor
420-450 Miles (Rail Only)

Wild and Scenic Rivers

Cataloged Anadromous Streams

Assumed Anadromous Streams

Wildlife Refuge

Wilderness

National Park

National Monuments

Large Bridges

Note: There is no designated critical habitat in the eastern portion of the study area.

Sources:
Cataloged Anadromous Streams: ADF&G

Coordinate System: NAD 1983 Alaska Albers

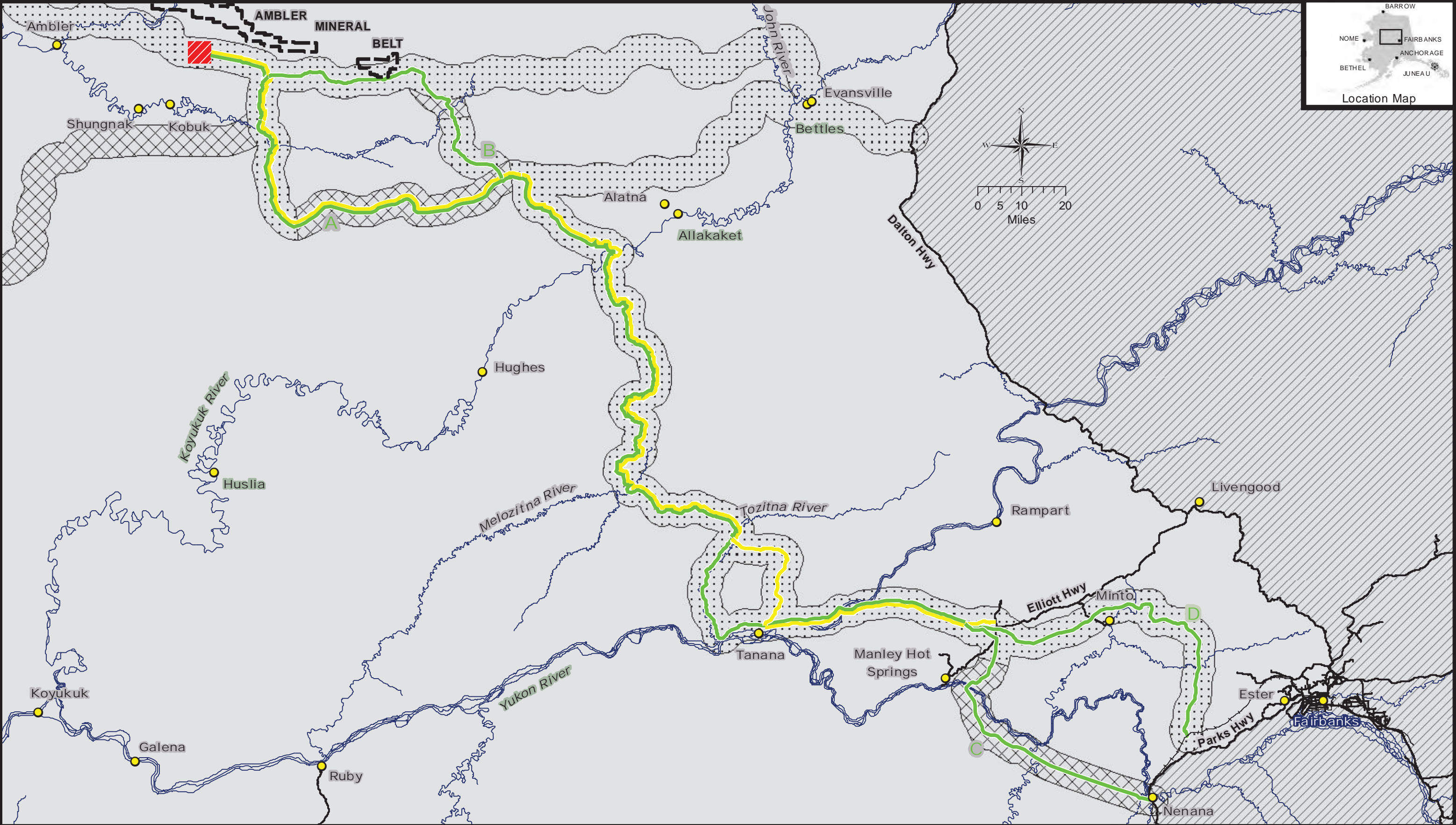
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
NORTHERN REGION

AMBLER MINING DISTRICT ACCESS
SUMMARY REPORT

SOUTHEAST CORRIDORS: CRITICAL HABITAT,
ANADROMOUS STREAMS AND LARGE BRIDGES

DATE: April 12, 2012

Figure 6



Coordinate System: NAD 1983 Alaska Albers

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
NORTHERN REGION

AMBLER MINING DISTRICT ACCESS
SUMMARY REPORT

SOUTHEAST CORRIDORS
MATERIAL SITE AVAILABILITY

DATE: April 19, 2012

Figure 7

3.3.3 Federal Conservation Systems

This corridor does not cross through any CSUs. The corridor is given a score of 5 for this criterion.

3.3.4 Wild and Scenic Rivers

This corridor does not cross any WSRs. The corridor is given a score of 5 for this criterion.

3.3.5 Salmon/Sheefish Rivers

This corridor crosses 8 mapped anadromous streams and 48 streams assumed to be anadromous, for a total of 56. This is in the lower range of anadromous streams crossed by the corridors, so this corridor is given a score of 4 for this criterion.

3.3.6 Caribou Habitat

This corridor crosses through migratory areas and the outer range of the WACH. This corridor and other corridors that head east from the Ambler mineral belt cross the least habitat for this major caribou herd, and are given a score of 5 for this criterion.

3.3.7 Threatened and Endangered Species and Critical Habitat Areas

This corridor does not cross through areas where threatened or endangered species or critical habitat areas are found, and it is given a score of 5 for this criterion.

3.3.8 Wetland Habitats

This corridor crosses through 88 miles of habitat preliminarily mapped as wetlands and is given a score of 3 for this criterion.

3.3.9 Availability of Material Sites

This corridor has material sites available every 10 miles for 84% of its length. It is given a score of 4 for this criterion.

3.3.10 Large Bridges

This corridor has 251 major stream crossings, including 12 large bridges with a total of 7,360 feet of large bridge spans. This corridor has one of the lowest numbers of large bridges but has one of the greatest amounts of large bridge spans, and is given a score of 2 for this criterion.

3.3.11 Construction Cost

The total estimated construction cost for this corridor is \$990 million (Appendix A). This construction cost is at the high end of construction costs for road corridors. The corridor is given a score of 3 on this criterion.

3.3.12 Maintenance Cost

Estimated annual maintenance cost for the Elliott Highway Corridor is approximately \$13.5 million. Initial maintenance camp construction and annual maintenance are summarized in Appendix A. This is the highest annual maintenance cost of all the road corridors evaluated; this corridor is given a score of 2 on this criterion.

3.3.13 Special Considerations

This corridor includes a Yukon River crossing. The Yukon River is one of the largest river systems in Alaska and poses significant engineering and permitting challenges.

3.4 Parks Highway Railroad Corridor

3.4.1 General Route Description

The Parks Highway Railroad Corridor follows the Elliott Highway Corridor from the Ambler mineral belt to the Tozitna River (Figures 6 and 7). At the Tozitna River, the railroad corridor follows the river south to the Yukon River, approximately 10 miles west of Tanana. The corridor then heads east and follows the Elliott Highway Corridor to a point approximately 5 miles west of Eureka.

Two options were evaluated for both the northern and southern portions of this railroad corridor; therefore, the length of the corridor varies from 420 to 450 miles. On the northern portion of the corridor, Option A follows the Elliott Highway Corridor to Siruk Creek. Option B follows the Brooks East Corridor from the Ambler mineral belt east to the boundary of GANPP. Option B heads south through GANPP just west of Nutuvukti Lake to Siruk Creek. Although it enters GANPP and crosses the Kobuk WSR, Option B has less steep terrain and is shorter than Option A.

On the southern portion of the corridor, Option C heads southeast from the Elliott Highway to the existing rail system at Nenana. Option D heads east and south from the Elliott Highway to the existing rail track at Dunbar.

Four corridor alignments are possible given the options at the north and south end of the corridor:

- Parks Highway Railroad Corridor A - Options B and D
- Parks Highway Railroad Corridor B - Options A and D
- Parks Highway Railroad Corridor C - Options B and C
- Parks Highway Railroad Corridor D - Options A and C

The evaluation of these corridor alignments is summarized in Table 6.

Table 6: Parks Highway Railroad Corridor Evaluation

Criterion	Corridor A	Score	Corridor B	Score	Corridor C	Score	Corridor D	Score
Corridor Length (miles)	430	1	450	1	420	1	440	1
Federal CSU (unit/miles/percentage of corridor)	GANPP/ 26 miles/6%	5 ¹	None	5	GANPP/ 26 miles/6%	5 ¹	None	5
Wild and Scenic Rivers	Kobuk WSR	5 ¹	None	5	Kobuk WSR	5 ¹	None	5
Salmon/Sheefish Rivers	71		62		84		75	
Mapped Anadromous	8	2	9	3	12	1	13	2
Assumed Anadromous	63		53		72		62	
Caribou Habitat	Less	5	Less	5	Less	5	Less	5
Threatened/Endangered Species/Critical Habitat	None	5	None	5	None	5	None	5
Wetland Habitats (miles)	151	0	138	1	141	1	129	1
Material Site Availability (percent of corridor with material site within 10 miles)	96%	5	87%	4	80%	3	72%	3
Total Large Bridges (number/length in ft)	13/7,470		17/10,410		13/7,730		17/10,670	
Bridges Over 1,500 ft	Yukon River/2,720 ft	2	Yukon River/2,720 ft	0	Yukon River/2,720 ft	2	Yukon River/2,720 ft	0
Major Stream Crossings	257		228		309		280	
Construction Cost ² (in millions)	\$1,880	0	\$1,990	0	\$1,990	0	\$2,010	0
Annual Maintenance Cost (in millions)	\$17.3	0	\$18.0	0	\$16.9	0	\$17.6	0
Special Considerations								
Annual Railway Operating Cost	\$11.1	NA	\$11.6	NA	\$10.8	NA	\$11.4	NA
Very Large Bridges	Yukon River	NA	Yukon River	NA	Yukon River	NA	Yukon River	NA
Total Score		30		29		28		27

1. Access through GANPP was recognized in ANILCA.

2. Costs rounded to tens of millions

3.4.2 Corridor Length

The corridor length for this rail corridor varies from 420 to 450 miles, as shown below (Table 7). Regardless of the options, each of these corridors is longer than any road corridor evaluated. All of the Parks Highway Railroad Corridors are given a score of 1 for this criterion.

Table 7: Parks Highway Railroad Corridor Lengths

Corridor	Options Included	Length (miles)	Score
Corridor A	B, D	430	1
Corridor B	A, D	450	1
Corridor C	B, C	420	1
Corridor D	A, C	440	1

3.4.3 Federal Conservation Systems

The primary portion of the rail corridors does not cross through any CSUs. Option B at the northern end of the corridor passes through 2.6 miles of the preserve portion of GANPP. Rail corridors using Option B (Parks Highway Corridors A and C) are given a score of 5 for this criterion, since ANILCA identified the need for an access corridor through GANPP. The rail corridors using Option A (Parks Highway Corridors B and D) are also given a score of 5.

3.4.4 Wild and Scenic Rivers

Rail corridors A and C cross the Kobuk WSR, with span lengths of approximately 400 feet. Since ANILCA includes provisions for access across the Kobuk WSR, these corridors are given a score of 5 for this criterion. Rail corridors B and D do not cross any WSRs and are also given a score of 5.

3.4.5 Salmon/Sheefish Rivers

These corridors cross between 62 and 84 streams that are either mapped or assumed to be anadromous (Table 8). These numbers are in the high to middle range of anadromous streams crossed by all corridors, so each of these corridors are given scores from 1 to 3 for this criterion.

Table 8: Parks Highway Railroad Corridor Anadromous Streams

Corridor	Mapped	Assumed	Total	Score
Corridor A	8	63	71	2
Corridor B	9	53	62	3
Corridor C	12	72	84	1
Corridor D	13	62	75	2

3.4.6 Caribou Habitat

These rail corridors cross through migratory areas and the outer range of the WACH. These corridors cross less habitat than any of the corridors that head west and are similar to the other corridors that head east. These corridors are all given a score of 5 for this criterion.

3.4.7 Threatened and Endangered Species and Critical Habitat Areas

None of the Parks Highway Railroad Corridors traverse areas where threatened or endangered species are found. All of the Parks Highway Railroad Corridors are given a score of 5 for this criterion.

3.4.8 Wetland Habitats

The Parks Highway Railroad Corridors traverse between 129 and 151 miles of wetland habitats. Parks Highway Railroad Corridors are given a score of 0 or 1 for this criterion (Table 9).

Table 9: Parks Highway Railroad Corridor Wetlands Habitats

Corridor	Length of Wetland Habitats Traversed (miles)	Score
Corridor A	151	0
Corridor B	138	1
Corridor C	141	1
Corridor D	129	1

3.4.9 Availability of Material Sites

These corridors have material sites available every 10 miles for the majority of their lengths, and scores range from 3 to 5 for this criterion (Table 10).

Table 10: Parks Highway Railroad Corridor Material Site Availability

Corridor	Percent of Corridor w/Material Sites within 10 miles	Score
Corridor A	96%	5
Corridor B	87%	4
Corridor C	80%	3
Corridor D	72%	3

3.4.10 Large Bridges

The large bridges crossed by Parks Highway Railroad Corridors A and C are in the lower range in number of large bridges compared to other corridors. The total length of large bridges is in

the high range, and these corridors are given a score of 2 (Table 11). Parks Highway Railroad Corridors B and D are in the middle range when compared to other corridors in number of large bridges. The total length of large bridges are the highest of any corridors, so these are given a score of 0.

Table 11: Parks Highway Railroad Corridor Large Bridges

Corridor	Large Bridges	Length of Large Bridge Spans (feet)	Score
Corridor A	13	7,470	2
Corridor B	17	10,410	0
Corridor C	13	7,730	2
Corridor D	17	10,670	0

3.4.11 Construction Cost

The total estimated construction cost for these rail corridors ranges from \$1,880 million for Parks Highway Railroad Corridor A to \$2,010 million for Parks Highway Railroad Corridor D. All of the Parks Highway Railroad Corridors have higher construction costs than any of the road corridors evaluated. All of these rail corridors are given a score of 0 on this criterion.

3.4.12 Maintenance Cost

Estimated annual maintenance costs range from \$16.9 million to \$18.0 million. These costs are significantly more than the maintenance costs for any road option or for any of the other rail options. These corridors are given a score of 0 on this criterion.

3.4.13 Special Considerations

The Parks Highway Railroad Corridors will require an additional operating cost for daily operations of the railroad. Estimated annual operating costs range from \$10.8 million for Parks Highway Railroad Corridor C to \$11.6 million for Parks Highway Railroad Corridor B.

All of the Parks Highway Corridors cross the Yukon River, the largest river system in Alaska, and will face significant engineering and permitting challenges.

3.5 DMTS Port Corridor

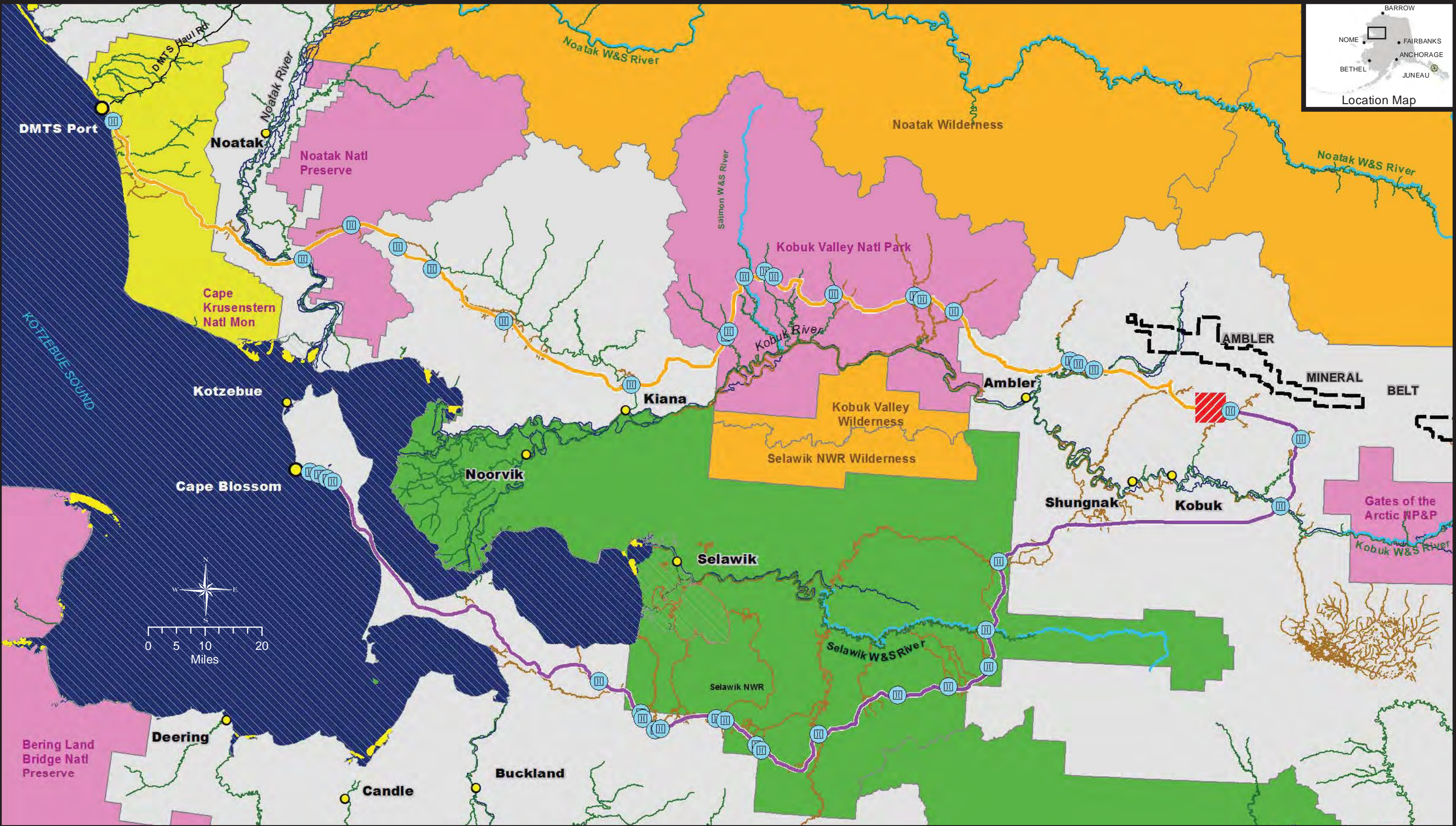
3.5.1 General Route Description

This northwest corridor extends approximately 260 miles between the Ambler mineral belt and DMTS Port (Figures 8 and 9). The corridor travels west through the Ambler Lowlands along the southern reaches of the Brooks Range, through Kobuk Valley National Park (KVNP), Noatak National Preserve (NNP) and Cape Krusenstern National Monument to the DMTS Port. The evaluation of this route is summarized in Table 12.

Table 12: DMTS Port Corridor Evaluation

Criterion	Road	Score	Rail	Score
Corridor Length (miles)	260	4	260	4
Federal CSU (unit/miles/percentage of corridor)	KVNP/NNP/CKNM/ 114 miles/44%	0	GANPP/CKNM/ 114 miles/44%	0
Wild and Scenic Rivers	Salmon WSR	0	Salmon WSR	0
Salmon/Sheefish Rivers Total	76		76	
Mapped Anadromous	13	2	13	2
Assumed Anadromous	63		63	
Caribou Habitat	More	0	More	0
Threatened/Endangered Species/Critical Habitat	Steller's eider yellow-billed loon polar bear	0	Steller's eider yellow-billed loon polar bear	0
Wetland Habitats (miles)	40	4	40	4
Material Site Availability (percent of corridor with material site within 10 miles)	70%	2	70%	2
Total Large Bridges (number/length in ft)	19/8,440		19/8,440	
Bridges Over 1,500 ft	Noatak River/1,560 ft	1	Noatak River/1,560 ft	1
Major Stream Crossings	213		213	
Construction Cost ¹ (in millions)	\$720	4	\$1,250	2
Annual Maintenance Cost (in millions)	\$9.5	4	\$10.6	3
Special Considerations				
Port Construction	No	NA	No	NA
Annual Railway Operating Cost	NA	NA	\$6.7	NA
Very Large Rivers	Noatak River	NA	Noatak River	NA
Total Score		21		18

1. Costs rounded to tens of millions.



Communities and Place Names

Existing Roads

Water

Ambler Mineral Belt

Proposed Staging Area

5-DMTS Port Corridor
260 Miles (Road & Rail)

6-Cape Blossom Corridor
250 Miles (Road & Rail)

Wild and Scenic Rivers

Cataloged Anadromous Streams

Assumed Anadromous Streams

Spectacled Eider Critical Habitat

Polar Bear
Barrier Islands Critical Habitat

Feeding Critical Habitat

Wildlife Refuge

Wilderness

National Park

National Monuments

Large Bridges

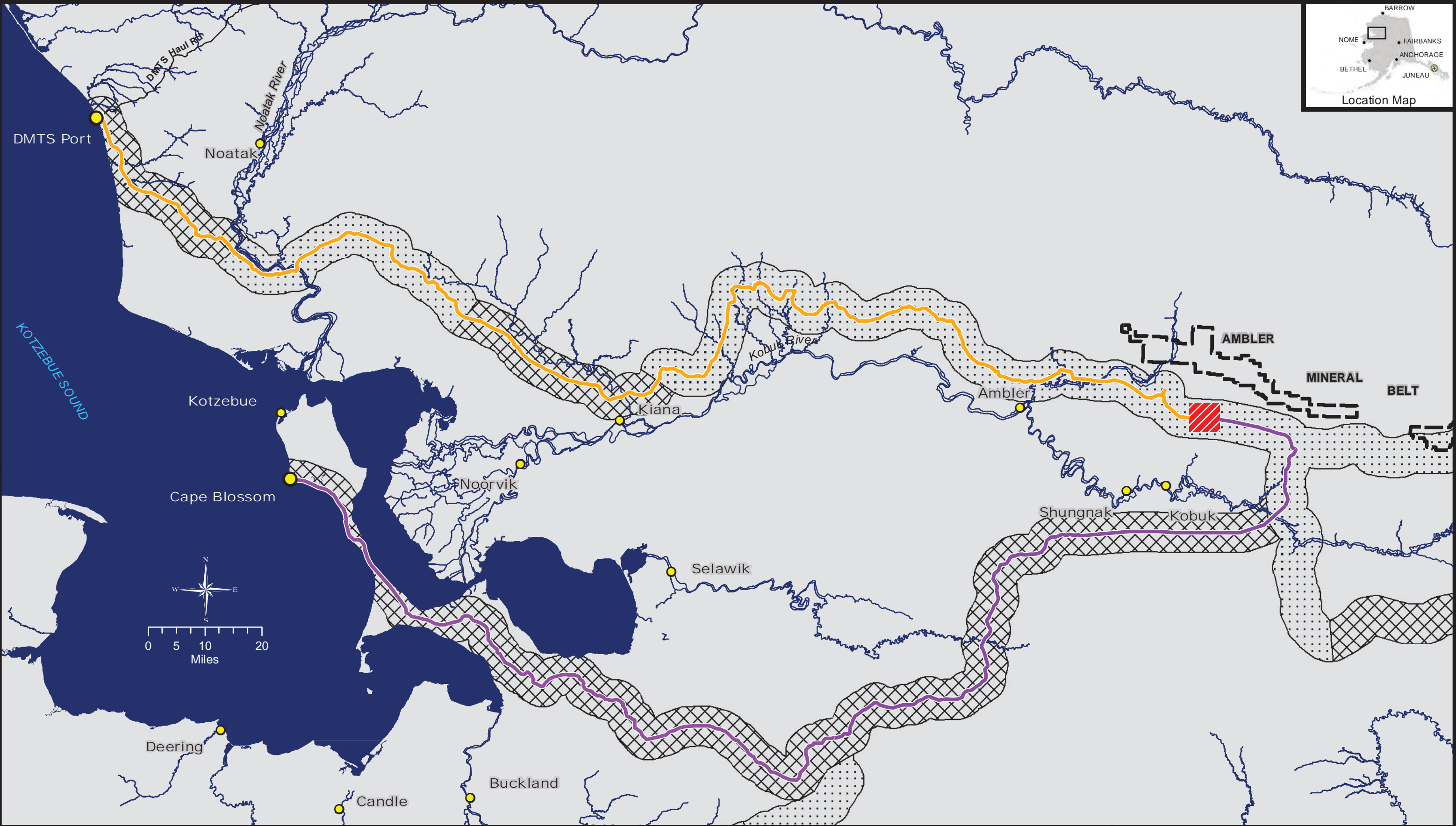
Sources:
Cataloged Anadromous Streams: ADF&G

Coordinate System: NAD 1983 Alaska Albers

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
NORTHERN REGION
AMBLER MINING DISTRICT ACCESS
SUMMARY REPORT
WEST CORRIDORS: CRITICAL HABITAT,
ANADROMOUS STREAMS AND LARGE BRIDGES
DATE: April 19, 2012

Figure 8

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Communities and Place Names	5-DMTS Port Corridor 260 Miles (Road & Rail)	Corridor Segments with Material Sites at Less than 10 Mile Intervals
Existing Roads	6-Cape Blossom Corridor 250 Miles (Road & Rail)	Corridor Segments with Material Sites at Greater than 10 Mile Intervals
Water		
Ambler Mineral Belt		
Proposed Staging Area		

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES NORTHERN REGION	
AMBLER MINING DISTRICT ACCESS SUMMARY REPORT	
WEST CORRIDORS MATERIAL SITE AVAILABILITY	
DATE: April 19, 2012	Figure 9

3.5.2 Corridor Length

This corridor is 260 miles long; in the lower range of the potential corridors. The corridor is given a score of 4 for this criterion.

3.5.3 Federal Conservation Systems

This corridor crosses through three CSUs: KVNP, NNP, and Cape Krusenstern National Monument. The length of the corridor within the CSU is approximately 114 miles, or 44% of the corridor length. This corridor has the most mileage through CSUs, and is given a score of 0 for this criterion.

3.5.4 Wild and Scenic Rivers

This corridor crosses the Salmon WSR, with a span of approximately 360 feet. This corridor was given a score of 0 for this criterion.

3.5.5 Salmon/Sheefish Rivers

This corridor crosses 13 mapped anadromous streams and 63 streams assumed to be anadromous, for a total of 76. This is in the high range in the number of anadromous streams crossed by any corridor, so this corridor is given a score of 2 for this criterion.

3.5.6 Caribou Habitat

This corridor is completely within mapped migratory and summer range for the WACH. The corridor is given a score of 0 for this criterion.

3.5.7 Threatened and Endangered Species and Critical Habitat Areas

This corridor has the potential to affect areas where Steller's eider, yellow-billed loon, and polar bear may be found. It is given a score of 0 for this criterion.

3.5.8 Wetland Habitats

This corridor crosses through 40 miles of habitat preliminarily mapped as wetlands and is given a score of 4 for this criterion.

3.5.9 Availability of Material Sites

This corridor has material sites available every 10 miles for 70% of its length, and is given a score of 2 for this criterion.

3.5.10 Large Bridges

This corridor has 213 major stream crossings, including 19 large bridges with a total of 8,440 feet of large bridge spans. This corridor is in the higher range in numbers of large bridges and total length of large bridges, and is given a score of 1 for this criterion.

3.5.11 Construction Cost

The total estimated roadway construction cost for this corridor is \$720 million for a roadway (Appendix A). This corridor is in the low range for road construction costs, and the corridor is given a score of 4 on this criterion. Construction costs for a rail system on the DMTS corridor is \$1,250 million. This is in the low range of cost for rail corridors, but is much higher than the cost of any of the road corridors. The DMTS Port Rail corridor is given a score of 2 on construction cost.

3.5.12 Maintenance Cost

Estimated annual maintenance costs for the DMTS Port Corridor are approximately \$9.5 million for a road corridor. Initial maintenance camp construction and annual maintenance are summarized in Appendix A. This is in the lower range of maintenance costs for road corridors evaluated; this road corridor is given a score of 4 on this criterion. Annual maintenance costs for a rail corridor along this alignment are estimated at \$10.6 million. These costs are significantly more than the maintenance costs for any road corridor but less than for some other rail corridors. This rail corridor is given a score of 3 on maintenance costs.

3.5.13 Special Considerations

The DMTS rail corridor would require additional costs for operation of a railroad, estimated at \$6.7 million per year. This corridor also crosses the Noatak River, which is a very large river, resulting in increased engineering and permitting complexity.

3.6 Cape Blossom Corridor

3.6.1 General Route Description

This corridor connects the Ambler mineral belt to Cape Blossom on the Baldwin Peninsula and is approximately 250 miles long (Figures 8 and 9). The corridor heads east and south from the Ambler mineral belt through the Selawik National Wildlife Refuge (NWR) and then west to Cape Blossom. Although Cape Blossom is not a developed port, it has been the subject of numerous studies due to the potential for accessing deeper marine waters compared to most other locations on the west coast of Alaska. The evaluation of this route is summarized in Table 13.

Table 13: Cape Blossom Corridor Evaluation

Criterion	Road	Score	Rail	Score
Corridor Length (miles)	250	5	250	5
Federal CSU (unit/miles/percentage of corridor)	Selawik NWR/ 94 miles/38%	0	Selawik NWR/ 94 miles/38%	0
Wild and Scenic Rivers	Selawik WSR	0	Selawik WSR	0
Salmon/Sheefish Rivers Total	85		85	
Mapped Anadromous	2	1	2	1
Assumed Anadromous	83		83	
Caribou Habitat	More	0	More	0
Threatened/Endangered Species/Critical Habitat	yellow-billed loon polar bear	0	yellow-billed loon polar bear	0
Wetland Habitats (miles)	144	1	144	1
Material Site Availability (percent of corridor with material site within 10 miles)	10%	0	10%	0
Total Large Bridges (number/length in ft)	22/9,250		22/9,250	
Bridges Over 1,500 ft	None	0	None	0
Major Stream Crossings	221		221	
Construction Cost ¹ (in millions)	\$860	3	\$1,330	2
Annual Maintenance Cost (in millions)	\$9.2	4	\$10.2	4
Special Considerations				
Port Construction	Yes	NA	Yes	NA
Annual Railway Operating Cost	NA	NA	\$6.3	NA
Total Score		14		13

1. Costs rounded to tens of millions.

3.6.2 Corridor Length

This corridor is 250 miles long; in the lower range of corridor lengths. The corridor is given a score of 5 for this criterion.

3.6.3 Federal Conservation Systems

This corridor crosses through one CSU, Selawik NWR. The length of the corridor within the CSU is approximately 94 miles, or 38% of the corridor length. This corridor is given a score of 0 for this criterion.

3.6.4 Wild and Scenic Rivers

This corridor crosses the Selawik WSR, with a span of approximately 280 feet. This corridor is given a score of 0 for this criterion.

3.6.5 Salmon/Sheefish Rivers

This corridor crosses two mapped anadromous streams and 83 streams assumed to be anadromous, for a total of 85. This is in the high range in number of anadromous streams crossed, so this corridor is given a score of 1 for this criterion.

3.6.6 Caribou Habitat

This corridor is completely within mapped migratory and winter range for the WACH. The corridor is given a score of 0 for this criterion.

3.6.7 Threatened and Endangered Species and Critical Habitat Areas

The corridor has potential to affect areas where polar bear and yellow-billed loons could be found. The corridor is given a score of 0 for this criterion.

3.6.8 Wetland Habitats

This corridor crosses through 144 miles of habitat preliminarily mapped as wetlands and is given a score of 1 for this criterion.

3.6.9 Availability of Material Sites

This corridor has material sites available every 10 miles for only 10% of its length; it is given a score of 0 for this criterion.

3.6.10 Large Bridges

This corridor has 221 major stream crossings, including 24 large bridges that span a total of 9,250 linear feet. This corridor has one of the higher numbers of large bridges and large bridge lengths, and is given a score of 0 for this criterion.

3.6.11 Construction Cost

The total estimated roadway construction cost for this corridor is \$860 million (Appendix A). This is in the middle range of road construction costs and the corridor is given a score of 3 on this criterion. Construction costs for a rail system on the Cape Blossom Corridor is \$1,330 million. This is in the low range of cost for rail corridors, but is much higher than the cost of any of the road corridors. The Cape Blossom Corridor for rail is given a score of 2 on construction cost.

3.6.12 Maintenance Cost

Estimated annual maintenance cost for the Cape Blossom Corridor is approximately \$9.2 million. Initial maintenance camp construction and annual maintenance are summarized in Appendix A. This is in the low range of maintenance costs for the corridors evaluated; this corridor is given a score of 4 on this criterion. Annual maintenance costs for a Cape Blossom rail corridor are estimated at \$10.2 million. This is the lowest maintenance cost for any rail option. This corridor is given a score of 4 on maintenance costs.

3.6.13 Special Considerations

This corridor connects to an area that has been studied and found to have good potential as a port site, but no port currently exists. Port construction costs and timeframe are not known and could complicate this option.

Operating costs for a railroad on the Cape Blossom Corridor are estimated at \$6.3 million per year.

3.7 Selawik Flats Corridor

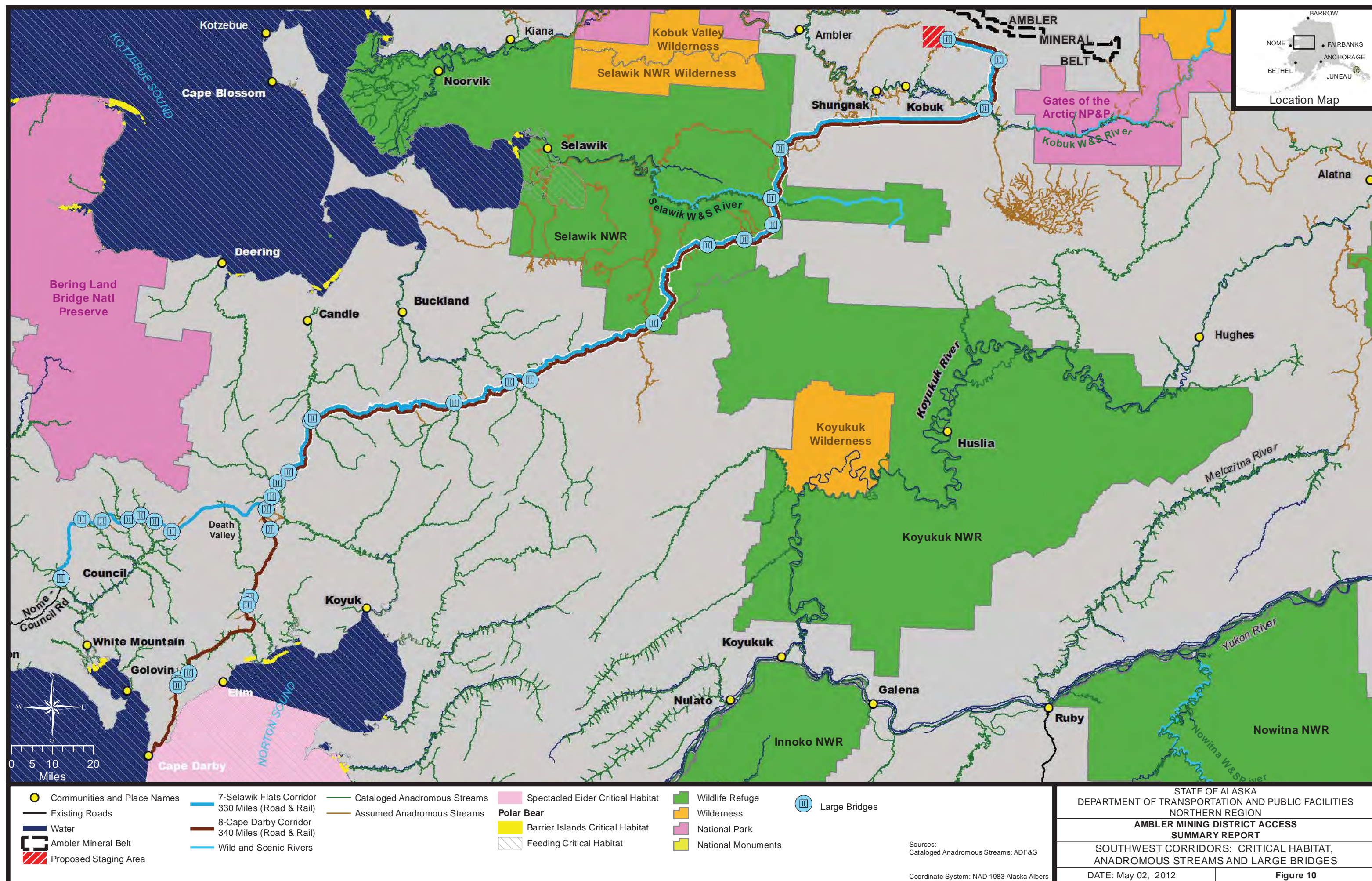
3.7.1 General Route Description

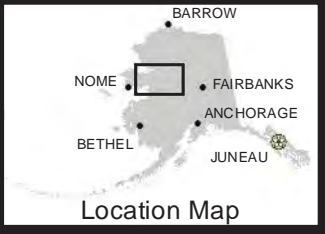
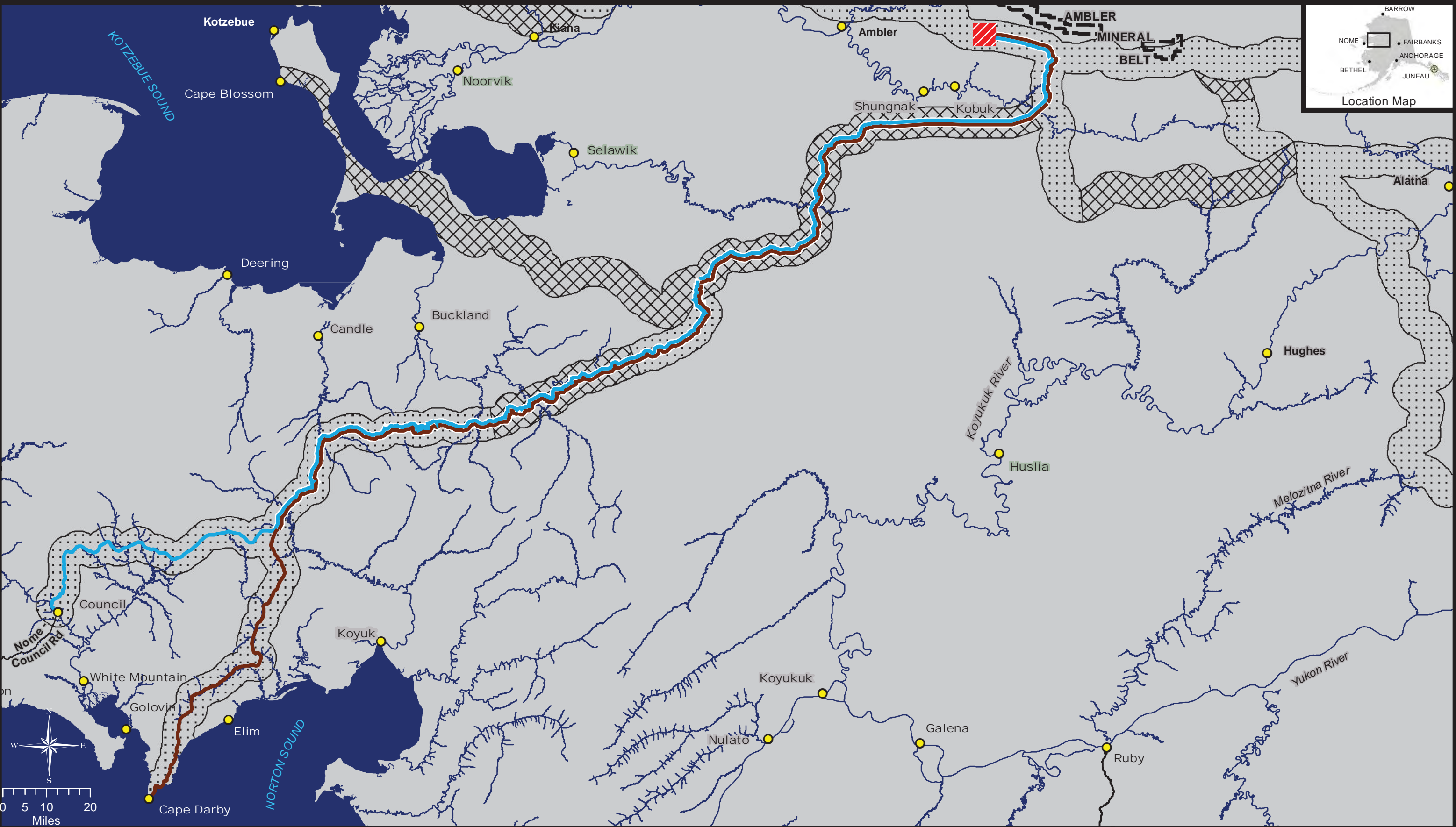
Selawik Flats Corridor extends approximately 330 miles from the Ambler mineral belt to Council, on the Seward Peninsula (Figures 10 and 11). The corridor follows the Cape Blossom Corridor from the Ambler mineral belt to near the southern boundary of the Selawik NWR. From there, the Selawik Flats Corridor heads west-southwest to Council. At Council, the corridor connects to the Nome-Council Road. The evaluation of this route is summarized in Table 14.

Table 14: Selawik Flats Corridor Evaluation

Criterion	Road	Score	Rail	Score
Corridor Length (miles)	330	3	330	3
Federal CSU (unit/miles/percentage of corridor)	Selawik NWR/ 77 miles/23%	0	Selawik NWR/ 77 miles/23%	0
Wild and Scenic Rivers	Selawik WSR	0	Selawik WSR	0
Salmon/Sheefish Rivers Total	71		71	
Mapped Anadromous	23	2	23	2
Assumed Anadromous	48		48	
Caribou Habitat	More	0	More	0
Threatened/Endangered Species/Critical Habitat	yellow-billed loon	3	yellow-billed loon	3
Wetland Habitats (miles)	78	3	78	3
Material Site Availability (percent of corridor with material site within 10 miles)	57%	1	57%	1
Total Large Bridges (number/length in ft)	21/7,470 ft		21/7,470 ft	
Bridges Over 1,500 ft	None	2	None	2
Major Stream Crossings	185		185	
Construction Cost ¹ (in millions)	\$960	3	\$1,560	0
Annual Maintenance Cost (in millions)	\$12.8	2	\$13.8	2
Special Considerations				
Port Construction	Yes	NA	Yes	NA
Annual Railway Operating Cost	NA	NA	\$8.6	NA
Total Score		19		16

1. Costs rounded to tens of millions.





Communities and Place Names	7-Selawik Flats Corridor 330 Miles (Road & Rail)
Existing Roads	8-Cape Darby Corridor 340 Miles (Road & Rail)
Water	Corridor Segments with Material Sites at Less than 10 Mile Intervals
Ambler Mineral Belt	Corridor Segments with Material Sites at Greater than 10 Mile Intervals
Proposed Staging Area	

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES NORTHERN REGION	
AMBLER MINING DISTRICT ACCESS PRELIMINARY MATERIAL SITE/GEOTECHNICAL RECONNAISSANCE	
SOUTHWEST CORRIDORS MATERIAL SITE AVAILABILITY	
DATE: April 19, 2012	Figure 11