



Yukon - Kuskokwim River  
**Freight & Energy Corridor**



Yukon-Kuskokwim Freight and Energy Corridor Plan

# STAGE III TECHNICAL REPORT

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# Executive Summary

## Introduction and Methodology

A transportation corridor between the Kuskokwim and Yukon Rivers has been studied and discussed since the 1950’s. In 2010, the community of Kalskag requested assistance from both the Denali Commission and the Association of Village Presidents (AVCP) to review and study an overland route between the Yukon and Kuskokwim Rivers. Since 2011, AVCP has conducted a multi-year Corridor Study to find a constructible and feasible route between the Yukon and Kuskokwim Rivers. This resulted in the Yukon-Kuskokwim Freight and Energy Corridor Plan (Corridor Plan).

The methodology of the Corridor Plan mimics the Federal Highway Administration’s Planning and Environmental Linkage (PEL) process. This process is used to identify transportation issues, priorities and environmental concerns. A PEL study can lead to a seamless decision-making process that minimized duplication of effort, promotes efficient and cost-effective solutions, promotes environmental stewardship, and reduces delays in project implementation.

## Study Location

The Corridor Plan study area is in Southwest Alaska near Kalskag and Lower Kalskag, about 90 miles from Bethel on the Kuskokwim River. The study area has grown to include an expansive region of Alaska that stretches across approximately 59,000 square miles, in 56 remote Alaskan communities.



## History

Figure 1 shows the study area and the corridors that have been studied since the 1950’s.

### 1956

- One of the original studies was completed by the Alaska Bureau of Public Road and looked at connecting the Yukon and Kuskokwim Rivers between Kalskag and the Paimiut Slough with a road. This corridor traversed the flat, lowland, wetlands west of the Portage Mountains.

### 1981

- The State of Alaska conducted a feasibility study along a corridor that shifted the 1956 corridor east and into the base of the Portage Mountains. This corridor, at the time, was concluded to be a more feasible corridor.

### 2011

- The Yukon to Kuskokwim River Engineering Study was conducted by the Western Federal Lands Highway Division of the Federal Highway Administration (2010-2011). This reconnaissance engineering review was requested by the Denali Commission on behalf of the community of Kalskag to review historical engineering studies. The goal of the study was to find an overland corridor between the two rivers; three corridors were looked at. The results from this study concluded that there were practical and feasible corridors and the primary corridor that was deemed superior would take advantage of existing infrastructure in the Kalskag area – barge access closer to Bethel and an airport with a 3,200 by 75-foot gravel surfaced runway. It was noted that land status in Alaska is complex, ever-evolving, and it was recommended to begin discussions with the manager of the Yukon Delta National Wildlife Refuge about time requirements for acquisition of a right-of-way and the process.

### 2015

- The Yukon-Kuskokwim Freight and Energy Corridor Plan was developed by AVCP (2012-2015). This Corridor Plan developed alternate routes and performed in-depth engineering and feasibility study to understand the best corridor location outside of the Yukon Delta Refuge. The work included engineering, land use and environmental analysis for several potential corridors, an economic analysis, and public outreach. The Corridor Plan selected Corridor C as the preferred route. Corridor C runs along the east side of the Portage Mountains beginning at Kalskag and ending at a port site on Paimiut Slough.

### 2019

- The Yukon-Kuskokwim Freight and Energy Corridor Plan, Stage III – Technical Report was developed by AVCP (2017-2019). This stage of the Corridor Plan had an original goal of determining the preferred route and taking steps to preserve the corridor through federal and private lands, so it would be available for a future transportation corridor. However, due to public concerns about cultural and subsistence uses in the north section of Corridor C, it triggered a renewed interest to study the direct comparisons between Corridors A and C, along with a need to gather additional public involvement from additional communities in the upper Yukon-Kuskokwim area.

## Transportation Corridors

Over the years many transportation corridors have been discussed and studied. Below is a list of those transportation corridors:

### 1956:

**Paimiut Portage:** This north-south route used the Paimiut and Twelvemile Sloughs, located across the Yukon River from the abandoned village of Paimiut, to access a series of tundra lakes along the western flank of the Portage Mountains. These headwater lakes and their connecting streams, together with Arhymot Lake and its outlet stream, provided a connection to the Kuskokwim River.

### 1981:

**Primary Corridor:** The proposed road alignment begins on the north bank of the Kuskokwim River between Upper and Lower Kalskag and closely parallels the western flank of the Portage Mountains to Paimiut Slough, off the Yukon River, roughly a distance of 33 miles.

### 2011:

**Primary Corridor:** The alignment description is identical to the 1981 – Primary Corridor description.

**Corridors A and B:** Cross through low passes in the Portage Mountains and are aligned generally along narrow valley bottoms.

**Corridor B:** Is the only corridor that is located completely outside of the Yukon Delta National Wildlife Refuge.

### 2015:

**Corridor A:** Partially located in the Yukon Delta National Wildlife Refuge and traverses’ lowlands where road building would be challenging and cost-prohibitive.

**Corridor B:** Begins in Kalskag on the Kuskokwim River and terminates at Paimiut Slough, traversing the western foothills of the Portage Mountains, and is approximately 42 miles long.

**Corridor C:** Shares the termini locations as Corridor B but runs along the eastern foothills of the Portage Mountains and is approximately 44 miles long.

**Corridor D:** Begins in an uninhabited and undeveloped northern bank of the Kuskokwim River, between Kalskag and Aniak, then meets up with a portion of Corridor C to its termination point on Paimiut Slough and is approximately 31 miles long.

**Corridor E:** Begins in an uninhabited and undeveloped northern bank of the Kuskokwim River, between Aniak and Chuathbaluk and

terminates at the southern bank of Paimiut Slough at an undeveloped location east of the termination points for Corridors A, B, C, and D, and is approximately 33 miles long.

Corridor Comparison:

- The Primary Corridor that was studied in 1981 and 2011 is in the general location of 2015 Corridor A.
- Corridor A that was studied in 1981 and 2011 is in the general location of 1015 Corridor D.
- Corridor B that was studied in 1981 and 2011 is in the general location of 1015 Corridor E, however in 2015 the corridor was refined to run within State of Alaska patented land.

Benefits of a Transportation Corridor

The Corridor Plan has examined the many benefits of a transportation corridor that links the Yukon and Kuskokwim Rivers. It was determined that it would address economic issues such as:

- create opportunities to lower bulk cargo prices,
- create jobs through construction and operations and maintenance activities associated with a future construction project,
- provide regional transportation system redundancy and security, and
- promote possible economic opportunities that improve the long-term stability for the 56 communities in the AVCP region and the four communities in the lower Yukon Tanana Chiefs Conference region.

Finalizing the Corridor Study

During the final stage, Stage IV of the Corridor Plan, it will focus on filling the gaps that are critical in developing a direct, side-by-side, comparison of Corridors A and C. Through Stage III, Corridor C was analyzed and during Stage IV, Corridor A will be fully analyzed. This additional information about Corridor A will enable decision-makers to have a detailed comparison of the two routes. Public outreach will also be increased during Stage IV. There will be continued meetings with stakeholders at regional meetings and a technical advisory committee will be developed. This committee will have representatives from stakeholder groups, tribal leaders, and state and federal agencies with a goal of contributing knowledge to assist the final decision for a preferred corridor.

Promoting and Advocating

AVCP will continue to promote and advocate to move the project forward throughout the regions. During the final stage of the Corridor Plan, AVCP will continue to combine modern planning and research methods with traditional and trusted communication methods with village elders, leaders and residents. Combining these methods used extensively thus far, will result in better decision-making when determining the preferred corridor route at the completion of the Corridor Plan.

AVCP will begin conversations with land owners along the Corridors and will also begin promoting and advocating the Corridor Plan and future construction project to:

- funding partners,
- regional, tribal, and local stakeholders,
- Alaska Legislature,
- Congressional Delegation, and
- initiate conversations with land owners along the Corridors.

2009

The Tevyaq Tundra Lakes Tram reconstruction project leads the community of Kalskag to submit a request to the Denali Commission to reconstruct the Paimiut Portage Tram. This project was not practical due to navigation challenges along the route.

2010

Stage I  
Yukon-Kuskokwim Road Reconnaissance Engineering Review

The community of Kalskag submits a request to the Denali Commission to conduct a review of the 1956 and 1981 road routes. The Denali Commission assigned the project to the Western Federal Lands Highway Division (WFLHD) of FHWA. WFLHD confirmed that the route is practical to build but noted that portions of the route are within the Yukon Delta National Wildlife Refuge due to an eastward shift of the refuge boundary, and the project was deemed impractical.

2011

The community of Kalskag requests that AVCP lead a State funded corridor study.

2012

Stage II  
Yukon-Kuskokwim Freight and Energy Corridor Study

AVCP utilizes a new FHWA transportation planning tool, Corridor Planning, to develop alternative routes through engineering, economic, and environmental criteria, and selected Corridor C as the preferred route. Through the study, four (4) new routes were identified along the west and east sides of the Portage Mountains and avoided the Yukon Delta National Wildlife Refuge.

2017

Stage III  
Yukon-Kuskokwim Freight and Energy Corridor Study

AVCP continues the corridor study and conducted a detailed land ownership analysis along Corridor C that documented right-of-way preservation opportunities and challenges. However, through the public involvement process it was determined that there was a need to actively pursue additional studies. Work included a cultural and substance analysis, a barge landing analysis, documentation of traditional place names in the area and an increase of public outreach to communities along the northern portion of Corridor C.

Figure 1: Project Timeline

# Project and Corridor History

## Introduction

The Yukon Kuskokwim Delta region is one of the largest deltas in the world stretching across 59,000 square miles, with approximately 26,000 residents in 56 remote communities. Because of rising energy and shipping costs in the region, Association of Village Council Presidents (AVCP) has been planning and researching corridor locations to anticipate future construction of a transportation corridor between the Kuskokwim and Yukon Rivers.

The original project started in 2010 with Reconnaissance Engineering, then moved to Stages I through III of the Yukon-Kuskokwim Freight and Energy Corridor Plan (Corridor Plan). Below is Figure 3 which illustrates the historic corridor routes.

The Corridor Plan from the beginning has been a cooperative planning process that evaluated connecting the Yukon Rivers with an overland transportation link. The Corridor Plan methodology has been based off the Federal Highway Administration’s (FHWA) corridor planning and planning and environmental linkages (PEL) processes. These processes represent a collaborative and integrated approach to transportation decision-making that

- 1 considers environmental, community, and economic goals early in the transportation planning process, and
- 2 uses the information, analysis, and products developed during the transportation planning process to inform the environmental review process.

This report provides an overview of the history of the project and corridor development, a summary of activities completed during Phase III of the Corridor Study, and recommendations for further studies and next steps to begin preliminary project design. Throughout the planning process there has been extensive and ongoing public outreach based on traditional methods and local knowledge.

## A. Stages

### Stage I: 2010-2011

#### Yukon-Kuskokwim Road Reconnaissance Engineering Review

In 2010, the Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration was assigned by the Denali Commission, at the request of the Native Village of Kalskag, to conduct an engineering review of the 1956 and 1981 road route. WFLHD was tasked to determine if the road route on the west side of the Portage Mountains (Corridor A) was still feasible. WFLHD found that construction remained feasible, but identified a land use challenge.

In 1980, Congress established the Yukon Delta National Wildlife Refuge (Refuge) from an array of reserved lands in the region as part of Alaska Native Interest Lands Conservation Act (ANILCA) legislation, the old Clarence Rhodes National Wildlife Range east boundary was moved eastward toward the Portage Mountains foothills in a way that the middle portion of the road route lay inside the new refuge.

This boundary created a challenge and FHWA indicated that other routes would need to be examined in any future work to ensure there was not another practical route to use for an overland link.

To address this challenge, AVCP commenced a corridor study using FHWA’s PEL process.



### What is a transportation corridor?

**It is a linear area in which one or more modes, such as a pipeline, railroad or road, provides an area to transport goods, services and people.**

### Stage II: 2012-2015

#### Yukon-Kuskokwim Freight and Energy Corridor Plan

In 2012, the community of Kalskag requested the AVCP Transportation Department take the lead on additional studies as the regional transportation and tribal organization. Through a series of engineering and geotechnical tasks, additional routes were evaluated on the west and east sides of the Portage Mountains while avoiding the Yukon Delta Wildlife Refuge. Four additional routes were identified, see Figure 3.

This initial range of alternatives included non-construction solutions such as policy, pricing and statute alternatives, use of other transport modes including barge, rail, and aviation alternatives, and traditional highway construction and operations alternatives.

This first phase confirmed that an overland transport corridor, open seasonally to meet summer barging operations, is a reasonable long-range transportation solution. The transportation corridor could include fuel pipeline(s), freight haul / pipeline service road, barge transfer ports, energy production / transmission, and maintenance, operations, and security facilities. The Corridor Plan:

- refined transport goals and general route standards,
- identified cost-effective, environmentally sound port locations on Paimiut Slough and the Kuskokwim River,
- located five practical corridor routes between ports, and
- identified adequate material sources to support construction and maintenance operations.

AVCP continued to advance the Corridor Plan process to understand economic, environmental, and social conditions in the project area, including a long-range view of transportation challenges, and then identify practical solutions that address those challenges.

During Stage II, the goal was to select the most practical route that had minimal environmental impact and avoided or accessed traditional places and uses as preferred by project area villages. Using engineering, environmental data, and local knowledge, AVCP used a criteria-driven process and ongoing public outreach to select Corridor C on the east side of the Portage Mountains as the best practical route outside the refuge.

Corridor A, the historic route, was not included in early Corridor Plan work as it was determined to be impractical due to land use challenges. However, this decision did not eliminate Corridor A from being brought up routinely in public meetings.

The Corridor Plan confirmed that an overland route has the long-term potential to improve fuel and freight deliveries in Western Alaska and would prepare the region for opportunities associated with the Alaska Natural Gas Pipeline project. Because of the fluctuation of the oil and gas market in Alaska - closure of Flint Hills Oil and Gas Refinery in 2014 and the construction delay of the Alaska Natural Gas Pipeline - the Corridor Plan will be a valuable tool for AVCP to use when funding opportunities arise to begin design of the future preferred corridor.

Stage II concluded in 2015 with a public review process that brought new concerns related primarily to subsistence and cultural resource uses along the Corridor C route that needed additional data and analysis. That new input led to a decision to supplement the Corridor Plan with the current Stage III effort. See Figure 3 – Historical Corridor Plan Routes and Figure 4 – Corridors A and C.

Stage III: 2017-2019

Yukon-Kuskokwim Freight and Energy Corridor Plan

The original goal for Stage III was to determine the preferred route and take steps to preserve the corridor through federal and private lands. However, during public outreach efforts, concerns about cultural and subsistence uses in the north section of Corridor C triggered a renewed interest to study the direct comparisons between Corridor A and C, along with a need to improve public engagement from additional communities in the upper Yukon-Kuskokwim area.

Tasks included:

- Increased public outreach to communities along the northern portion of Corridor C.
- Detailed land status and ownership research along Corridor C to document right-of-way (ROW) opportunities and challenges.
- Subsistence and cultural resources literature review and data gap analysis in the study area covering Upper Kalskag, Lower Kalskag, Aniak, Atmautluak, Kasigluk, Nunapitchuk, Tuluksak, Chuathbaluk, Marshall, Russian Mission, Holy Cross, Anvik, Shageluk, and Grayling. The review summarized known information on subsistence areas and identified areas where information is outdated or limited.
- Place name reporting to collect and document traditional place names in Aniak, Chuathbaluk, Upper Kalskag, and Lower Kalskag.
- Barge landing existing conditions analysis.

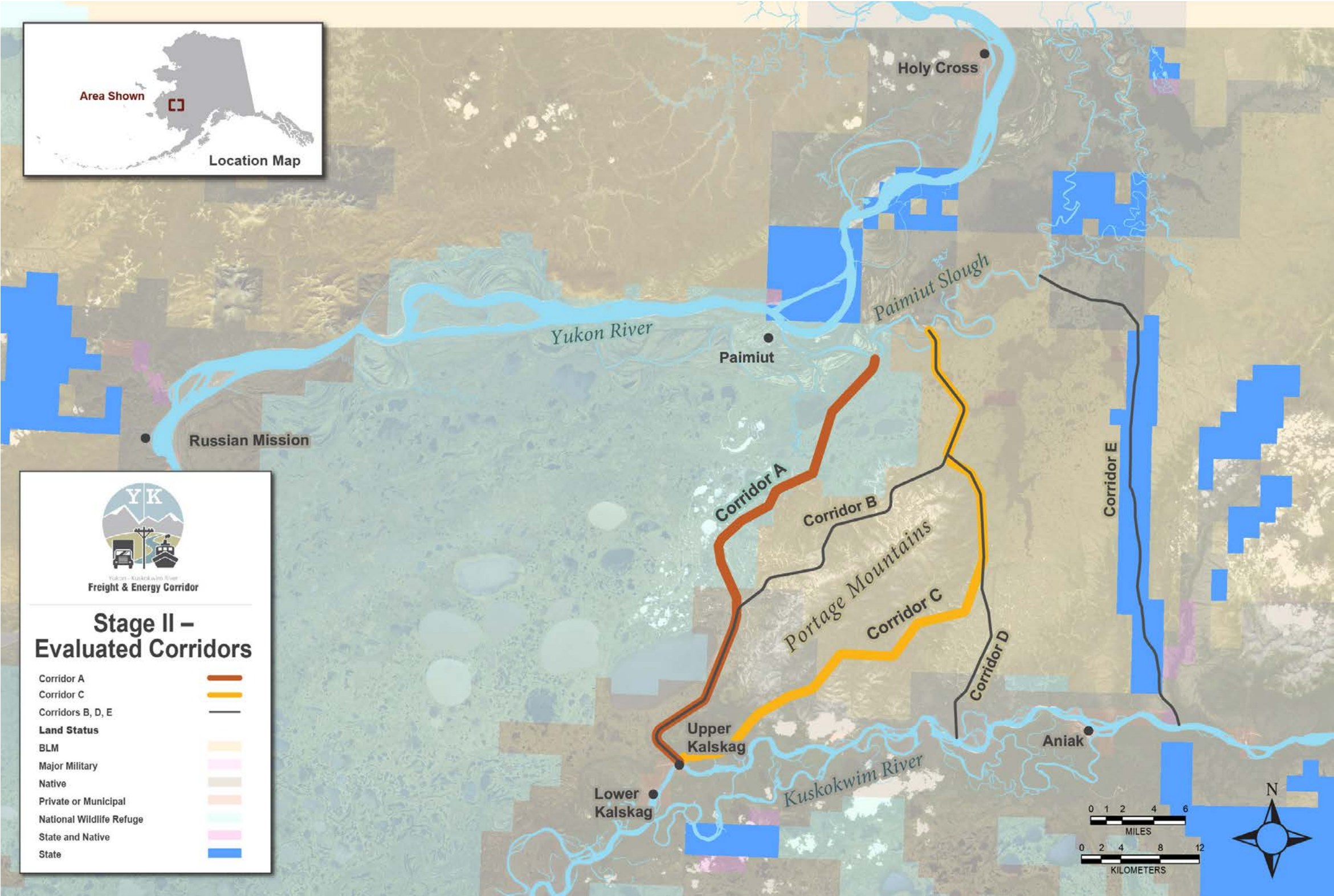


Figure 2: Stage II – Evaluated Corridors

# B. Future Project Components

Throughout the project, the corridor elements described below have been discussed and documented.

- New port at or near Kalskag on the Kuskokwim River with piling-supported or sheet wall dock transfer facilities, fuel storage and freight lay-down yards, security systems, and emergency response capabilities.
- New port on Paimiut Slough that connects to the Yukon River with piling-supported or sheet wall dock transfer facilities, fuel storage and freight lay-down yards, security systems, emergency response capabilities, and staff housing facilities.
- At one or both ports, site development for potential power production with associated transmission infrastructure along the corridor for maintenance stations, pump stations, and area communities.
- Roughly a 45-mile corridor between the ports with capability for:
  - Seasonal, low-volume freight haul road, opened in the spring and closed after barging season is complete.
  - Seasonal maintenance stations with 1) routine maintenance and minor reconstruction capable equipment fleet, 2) road and pipeline emergency response capability, and 3) limited access to gravel sites developed and reclaimed during construction.
  - One or Two refined fuel product pipelines built using winter construction techniques for seasonal gasoline/diesel transport including pump station facilities coordinated with maintenance station locations.
  - Power transmission lines, both overhead or below ground to provide maintenance station and pump station services and power distribution to project area communities.

While the road is essential to successful operations, the key infrastructure may be the fuel pipeline(s) that provides two-way flow to ports on both rivers so fuel transfers from lowest-price sources are available to both Yukon and Kuskokwim River communities. The road, confined to summer operations, will be a low-speed freight haul road that also provides easy access to pipeline(s) for maintenance and operations needs. Work to date indicates the project is practical to construct and operate when economic and social conditions warrant. The corridor would create new transportation efficiencies and security throughout the Yukon and Kuskokwim River regions.

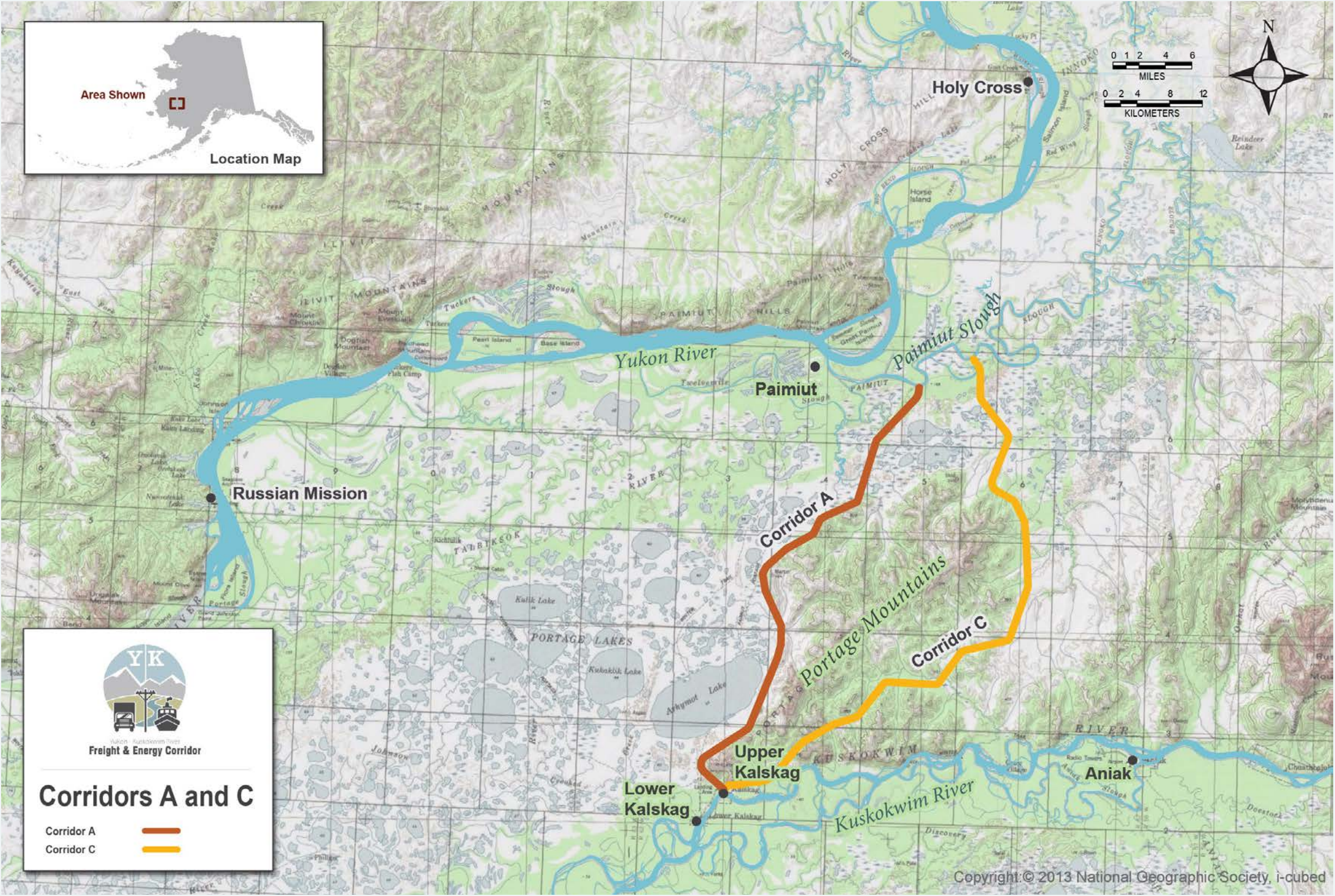


Figure 3: Corridors A and C

# Public Outreach

During Stage III the primary goal was to identify public concerns related:

- to the overall project,
- the corridor route selection process, and
- how best to continue improving public outreach to such a large study area.

## A. Public Outreach Efforts

A Public Involvement Plan (PIP) was developed for each stage of the planning process. The PIP provided the planning team with a common vision and process for involving key stakeholders and community leaders. The

goal was to have future project planning and corridor development informed by community comments and suggestions. Stakeholders who have been involved with this planning effort to date include:



## Stage III Public Outreach Efforts

**Partner/Tribal Gatherings:** The planning team held and participated in seven gatherings throughout 2018. The team visited AVCP and Tanana Chiefs Conference (TCC) communities and regional leaders regarding the project status. Following is a list of the meetings that took place during the Stage III efforts.

- **October 19-21, 2017** – Alaska Federation of Natives – Anchorage
- **January 30, 2018** – The Kuskokwim Corporation (TKC) Meeting – Anchorage
- **March 10, 2018** – TCC Sub-Regional Advisory Meeting – Fairbanks
- **March 12, 2018** – Tribal Gathering – Bethel
- **May 23, 2018** – Grayling, Anvik, Shageluk, Holy Cross, and TCC Meeting – Anchorage
- **October 3, 2018** – TCC Sub-Regional Advisory Meeting – Holy Cross
- **October 18-20, 2018** – Alaska Federation of Natives – Anchorage
- **November 18, 2018** – AVCP Executive Board Meeting – Bethel
- **March 7, 2019** – TCC Sub-Regional Advisory Meeting – Fairbanks

### Public Involvement Handouts and Social Media

**Methods:** The planning team developed and distributed public outreach materials:

- **Project Fact/Comment Sheet** – A project fact and comment sheet was prepared to communicate overall project goals, objectives, and facts to stakeholders and to serve for conference and presentation purposes. The fact sheet included a section for comments on the back and have been collected by the planning team.
- **Frequently Asked Questions (FAQ)** – An FAQ was prepared to help alleviate public uncertainty about the project. The FAQ's are located on the AVCP website.
- **Project Website and Facebook** – The project shared the AVCP transportation department's website and the AVCP Facebook page. They provided periodic project updates to stakeholders and the public.
- **Survey** – A survey was developed and distributed to the public and stakeholders via the AVCP website and Facebook page. The survey asked the public for

their input on what the project meant to them as individuals and what it meant to their community. Four (4) surveys have been completed and provided to the planning team.

**Outcomes/Recommendations:** Stage III public input identified new concerns about cultural and subsistence uses in the north section of Corridor C, which triggered renewed interest in developing data that would allow a direct engineering and environmental comparison between Corridors A and C.

## B. Land Ownership Analysis

The planning team completed an extensive land status and ownership research analysis for Corridor C. The review area was along the 45-mile by 2,000-foot corridor. The following methodology was used for the analysis document, it identified surface and subsurface ownership data within Corridor C.

- 1 Potential conflicts within Corridor C could include:
  - a. **Private properties:** Portions of private property may need to be acquired within the corridor.
  - b. **Native allotments:** All efforts will be made to go around native allotments, currently there are no known allotments within the corridor.
  - c. **Easement:** There will be easements needed within the corridor that will require additional acquisition or permissions.
- 2 Research and documentation for relevant properties that could impact the future corridor acquisition has been completed for Corridor C and include records for the following properties:
  - a. Trails
  - b. Easements
  - c. Subdivisions
  - d. Private property owners
  - e. Native Allotments
  - f. Patents/Deeds/Conveyances

## C. Subsistence and Cultural Resources Literature Review and Data Gap Analysis

Through public meetings and gathering public input, the project team received a number comments that directed them to research subsistence and cultural resources along both Corridor A and Corridor C. The primary goal of this effort was to compile existing subsistence harvest and use data as well as existing documentation of cultural resources to inform the planning team and communities as the planning process develops. This work also allowed the communities to take a lead in ensuring that their indigenous ways of living are valued, protected, and incorporated into future project development planning materials.

Work included a subsistence and cultural literature review for communities along the Kuskokwim River (Upper Kalskag, Lower Kalskag, Aniak, Atmautluak, Kasigluk, Nunapitchuk, Tuluksak and Chuathbaluk) and six communities along or near the Yukon River (Marshall, Russian Mission, Holy Cross, Anvik, Shageluk, and Grayling). A summary of the scope of work and data gap recommendations are provided below. The full report is available for review upon request to the AVCP Transportation Department.



Photo credit: Stephen R. Braund and Associates

### Subsistence Review Summary and Data Gap Recommendations

An Alaskan anthropological firm, Stephen R. Braund & Associates, was tasked to document where subsistence activities occurred (use areas), what resources are being harvested (harvest data), and during what times of the year these activities are occurring (timing of subsistence activities), with a focus on the major resources of moose, salmon, and non-salmon fish species. The analysis provided the team with four data gap recommendations to implement during the next stage of the planning process. They are discussed further in the Next Steps section.

### Cultural Resource Review Summary and Data Gap Recommendations

The cultural resource study area is located within the traditional territory of Central Yup'ik peoples, near the interchange with two Athabascan language groups (primarily the Deg Xinag with Holikachuk located farther up the Yukon and Innoko rivers). The literature review determined that little is known about the prehistoric sequence of past cultural groups due to an overall lack of research. This lack of research is apparent in the small number of documented cultural resource sites and place names in the study area. Most of the reported sites correlate to current village locations and associated historic structures. The analysis identified two data gaps to address in the next stage of the planning process.

- GIS landscape analyses for the cultural resource study area. This effort will guide any future field survey efforts.
- Traditional and sacred site interviews in five communities closest to the Project (Upper Kalskag, Lower Kalskag, Aniak, Russian Mission, Holy Cross).

## D. Place Names Documentation

A cultural anthropologist traveled to Aniak and Upper Kalskag to document indigenous historical information by interviewing elders from Aniak, Chuathbaluk, Upper Kalskag, and Lower Kalskag.

During the interviews, elders told many stories about the historic use of the existing winter trail system and portage for transportation between the Kuskokwim and Yukon Rivers. The graphic below provides a general context of the typical route to reach the Yukon River. For a full review of the Yup'ik Atlas, visit the Yup'ik Environmental Knowledge Project website. This website documents the historic winter trail and portage use, as well as the documented place names within the project area and the Yukon-Kuskokwim region.

Elders spoke about historical use of the area and that the Qalqaq (Lower Kalskag) area has been a transportation hub for hundreds of years, with winter trails leading to Paimiut and Russian Mission. They described the main portage route from Lower Kalskag to Paimiut on the Yukon. Entering from the north end of Maqallartuli Creek (Mud Creek), then takes a short portage (Tevyaraq) to Pike Lake (Kuicaram Qagatii, Johnson River Lake), follows the little lakes along the hills, portaging into Paimiut Slough.



Communities that participated in the interviews are shown above in relation to Corridors A and C.



Photo credit: Ann Riordan, Elder meeting in Aniak, Summer 2018

Elders described the summer portage route between the Kuskokwim and the Yukon River below Russian Mission. From Lower Kalskag, they followed Maqallartuli Creek (Mud Creek) until they reached the portage at Qessanaqutaq. From there, people crossed a small lake, Kiatmurun, and took another portage into the upper Kuicaraq (Johnson River). See Figure 5, Summer Portage Route.

To reach the Yukon, they followed Kuicaraq downstream to Qakerluat (Crooked Creek). They then followed Qakerluat Creek to its headwater lake, Qakerluat, then into Quliq Lake. At the northwest corner of Quliq Lake, they took another portage through a fabricated creek into upper Taallerviksaar River. Finally, they followed Taallerviksaar downstream until it entered the Yukon River below Russian Mission.

Elders spoke about historical use of the area and that the Qalqag (Lower Kalskag) area has been a transportation hub for hundreds of years.

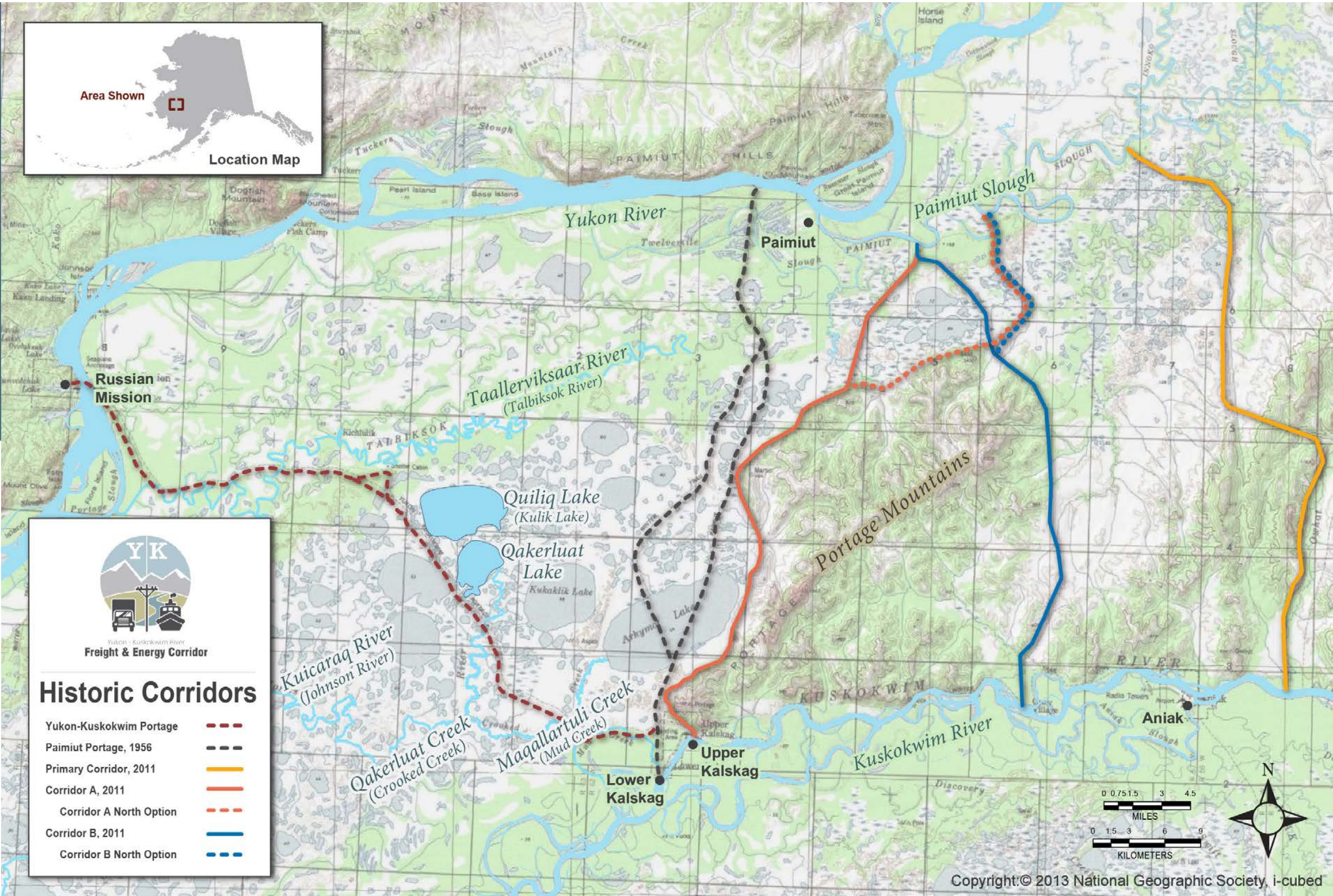


Figure 4: Historic Corridors

## E. Barge Landing Existing Conditions

The barge landing analysis included two primary focuses within the AVCP and TCC regions:

1

documentation of existing conditions of marine and fuel facilities

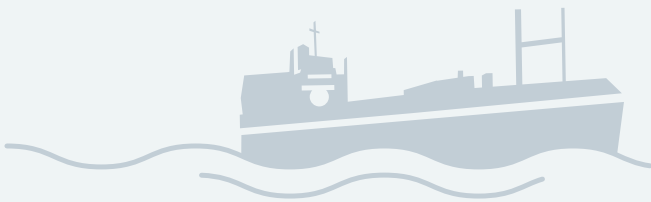
2

documentation of fuel spills over the past ten years using the DEC spills database

The planning team could document the existing conditions for this effort, but due to schedule constraints and timing of conducting barge operator interviews, a detailed needs analysis was not completed. A complete long-range barge operations trends analysis will be completed in Stage IV.



Photo credit: (UAF, 1920a). Stern-wheeler pushing a barge and entering the Paimiut Slough as the confluence of the Yukon River.



## Existing Conditions

Fuel and cargo distributed by barge on the Kuskokwim River comes from Unalaska/Anchorage or Seattle and goes upriver, while most of the fuel distributed by barge on the Yukon River comes downriver from Nenana and Fairbanks. Barge operators use dock facilities at Bethel on the Kuskokwim River, and Emmonak and Alakanuk on the Yukon River, as redistribution hubs for ocean barge cargo shipments originating primarily in Cook Inlet and Puget Sound. Ocean barges offload and stage fuel and cargo in the hub communities of Bethel, Emmonak, and St. Mary’s, where it can be stored or redistributed to other communities along the river system by smaller in-river vessels. Crowley, Ruby Marine, Knik Construction, Cruz Construction, Delta Western, and Brice are the main barge operators delivering fuel to communities along the Yukon and Kuskokwim Rivers. Approximately 40 communities located along the river system rely on receiving fuel from Seattle-and Anchorage-based barge operations. This hub fuel and cargo distribution system is efficient where geographical challenges often limit direct deliveries by large ocean barges. Figure 6 shows the locations of the existing barge and fuel distribution system for the Yukon and Kuskokwim River communities.

Bethel is a distribution point for fuel delivered to communities along the Kuskokwim River. According to the City of Bethel’s City Manager, the tank farm at the Port of Bethel Dock holds ~17 million gallons of fuel, ~ 20 percent or 3.4 million gallons of the total amount is barged to communities located along the Kuskokwim River. The remaining portion of fuel remains in Bethel for local use.

Emmonak is a future distribution point for fuel delivered to communities along the Yukon River. Recently the City of Emmonak has been received funding approval to build a port facility. The grant will be sufficient to fully construct a permanent dock, ramps, and service road improvements. St. Mary’s acts as a trans-shipment point for barged cargo destined for other communities on the Yukon.

## Existing Marine Infrastructure Conditions

Table 1 includes existing marine infrastructure facilities for communities within the project study area.

Aniak	Barges can land at several places along the beach in this area.
Anvik	The primary landing area at Anvik consists of an access road that extends down to the riverbank at the fuel header location.
Chuathbaluk	The river access to Chuathbaluk is very shallow and small vessels are used to lighter cargo to this community.
Grayling	The barge landing site at Grayling consists of a wide, gradually sloping beach with a good access road to the community. There are three existing deadman mooring points in the trees at the upriver landing for access to the fuel header.
Holy Cross	The barge landing area at this community consists of a relatively long, narrow landing area that can be used concurrently by several barges. The fuel header and two deadman mooring points are located at the downriver end of the landing area.
Lower Kalskag	The barge landing site is at the end of an access road that leads to the central part of the community.
Marshall	The shoreline that fronts the community is subject to active erosion. There is a fuel pipeline and header at an undeveloped landing site about midway along the shoreline in front of the community.
Russian Mission	The main barge landing site is just downriver.
Shageluk	There are two landing sites, one on the downstream end of the community and the other upstream that accesses the Alaska Village Electric Cooperative (AVEC) tanks.
Tuluksak	Barge operators use a barge landing site near the airport.
Upper Kalskag	The main barge landing area at Upper Kalskag consists of a 70-foot wide ramp of gravel and rock material that has been pushed out into the river from the beach about 40-feet from the shoreline.

Table 1: Existing Marine Facilities

## Fuel Spill Research

During the March 12, 2018 tribal gathering in Bethel, community members raised concerns regarding a potential increase in fuel spills due to increased freight corridor activities. The concern is that additional barges providing fuel to communities along the Kuskokwim River may increase fuel spill activity, which could negatively affect subsistence activities.

To assist in addressing these questions, the planning team investigated the historical data for fuel spills over the last ten years for the Kuskokwim and Yukon Rivers. The State of Alaska Department of Environmental Conservation (DEC) spills database was the source for the data used to conduct the analysis.

The research determined that most of the locations along both the Kuskokwim and Yukon Rivers where documented spills occurred impacted land only. Spills are most likely from all-terrain vehicle (ATV) or snow machine use impacting above-ground fuel lines.

During Stage IV, additional analysis will take place to complete a long-range barge operations trends analysis. This analysis will conduct additional interviews with barge operators to further document the needs for barge and fuel operations. Interviews and coordination with barge and fuel operators should take place during the winter/spring months when barges are not delivering to communities.



Figure 5: Existing Ports and Barge Landings

# Stage III Outcomes

At the completion of Stage III, additional documentation was identified to be able to fully develop Corridor A to the same engineering, land ownership analysis, and environmental standards as Corridor C.

Critical tasks required for a direct comparison of the two corridors include:

- land ownership analysis,
- barge operations trends analysis, and
- using previous engineering judgements to make a direct and full comparison between the two routes.

Additional work has been identified that can be completed during Stage IV, if funding and timing lines up with a variety of needs. That work includes:

- Subsistence and cultural analyses

Timing is key to this work; if the road project advances into the preliminary design phase

within three years of completing the Corridor Plan, the subsistence and cultural analyses should be completed. If not, it is recommended to postpone these analyses. Typically, agencies require data be collected within the last three years.

It is important to reiterate that all work completed to date and all work that will be completed in Stage IV will enable decision-makers to have a detailed comparison of the two routes. This will enable them to identify the final preferred corridor and complete the Corridor Plan.

Once full funding has been secured, and economic and social conditions in the region change, the Corridor Plan will be a tool for AVCP to use and move forward with tasks listed in the Future Project Development section.

Key steps for future project development of the Yukon-Kuskokwim Freight and Energy Corridor are described in Figure 7.

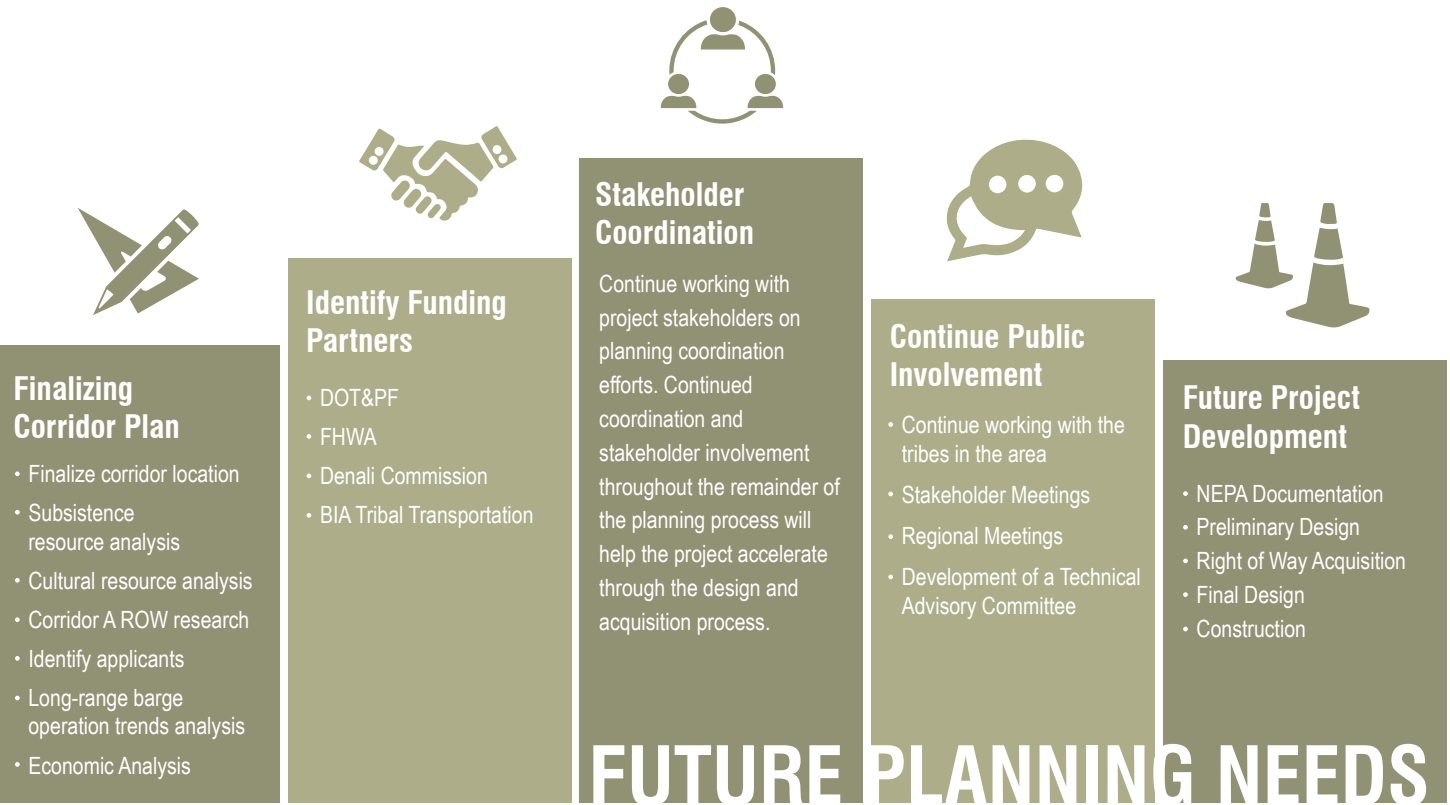


Figure 6: Future Planning Needs

## A. Stage IV – Study Completion

AVCP intends to develop a Stage IV scope of work that will complete the corridor study by providing additional information about Corridor A and advancing it to the same level of analysis as was completed for Corridor C in Stage III.

The following tasks will better enable the decision-making process when determining the final preferred corridor route:

- continued public outreach,
- continued focus to document additional subsistence resources,
- continued documentation of additional cultural place name locations,
- a full land ownership analysis for Corridor A, and
- completion of a long-range barge operations trends analysis.

### Public Outreach

Additional tasks include:

- Continue public outreach to communities and stakeholders along both Corridor A and Corridor C,
- Stakeholder Meetings,
- Regional Meetings, and
- Development of a Technical Advisory Committee (TAC)

### Subsistence and Cultural Resource Review and Data Gap Analysis

Additional subsistence analysis in the 14 potentially affected study communities mentioned below:

- 1 Upper Kalskag, Lower Kalskag, Aniak, Holy Cross, and Russian Mission;
- 2 Tuluksak, Chuathbaluk, Marshall, and Anvik, Shageluk; and
- 3 Grayling, Kasigluk, Atmautluak, and Nunapitchuk.

Additional tasks include:

- Household harvest surveys in Holy Cross, Nunapitchuk, Kasigluk, and Atmautluak,
- Alaska Department of Fish and Game (ADF&G) information data gap analysis concerning the wildlife harvest ticket database,

- GIS landscape analyses for the cultural resource study area, guide field survey efforts, and
- Traditional and sacred site interviews in five communities closest to the project location survey efforts.

### Place Names Documentation

Additional tasks include:

- Place name documentation in Anvik, Grayling, Holy Cross, and Shageluk.
- Add place name documentation to the Yup'ik Environmental Knowledge Project – The Yup'ik Atlas. [www.eloka-arctic.org](http://www.eloka-arctic.org).
- Incorporate all place name documentation efforts into the final corridor plan.



### Land Ownership Analysis

Additional tasks include:

- Detailed land status and ownership research along Corridor A to document ROW opportunities and challenges.

### Barge Operations Trends Analysis

Additional tasks include:

- Conduct additional interviews with barge operators along both the Kuskokwim and Yukon Rivers, and
- Document current and future needs for barge and fuel operations.

## B. Future Project Development

Future project development is not likely to occur for many years and should be considered a mid to long-range project. If economic conditions in the region begin to deteriorate to the point where an overland transportation link is needed, the completed Corridor Plan will be available to use as a starting point for the next project development phase.



### Preliminary Design Development

Following the Corridor Plan update, the project will move forward into preliminary design. During this stage of the project, the preferred corridor route will begin the preliminary design process.



### Environmental Analysis

During preliminary design, the National Environmental Protection Act (NEPA) analysis also begins. The NEPA analysis is expected to result in an Environmental Impact Statement (EIS) and can take several years to complete.

Federal land required for either corridor is owned and managed by the Bureau of Land Management (BLM) and obtaining permission for use of this land will likely be through ROW acquisition. BLM lands are subject to the Federal Lands Management Procedure Act (FLMPA) and the regulations promulgated for ROW acquisition procedures. An application for Transportation and Utility Systems and Facilities on Federal Lands (Standard Form (SF) 299) must be completed for obtaining the necessary access during construction, easements for the Corridor ROW, and any proposed material sources. This federal action would require a NEPA document.

Due to the extent of wetlands and waterways impacted by either corridor, primary federal authorization required by the project is through Section 404 of the Clean Water Act, administered by the U.S. Army Corps of Engineers (USACE). The Section 404 permit application would require the following:

- Wetland Delineation and Functions Assessment,
- Purpose and Need Statement and Alternatives Analysis,
- Detailed analysis of all resources potentially affected by the project, and
- Coordination with USACE.

The Section 404 permit application would be developed to be sufficient for USACE staff to complete an internal NEPA document. Additionally, the USACE permit application would be sufficient to allow the BLM to write their own NEPA document, therefore the Corps permit process would be initiated before the SF 299 is submitted, or concurrently.



### Right of Way Acquisition and Final Design

The following entities own, manage, or have an interest in lands within the corridors:

- BLM,
- Calista Corporation,
- City of Upper Kalskag,
- TKC,
- State of Alaska, Department of Natural Resources (DNR), and
- Private individuals

During all stages of the project, every effort will be taken to route the final corridor around Native Allotments. Additionally, any needed acquisitions will need to follow the associated acquisition process pertaining to the land owner, and it is important to note that water crossings will require federal (BLM) and state (DNR) submerged lands processes to acquire the necessary right of way.



### Construction

Although construction of a preferred corridor is a medium to long-range project, there will be a significant pre-construction effort with a need to continually gather funding partners for a project of this size. Once constructed, this corridor has the potential to be a 45-mile overland route with port or barging facilities at either ends of the corridor. This project will need many different funding partners, such as the State of Alaska, FHWA, BIA Tribal Transportation, grants, and public private partners.

## Conclusion

This project identifies a transportation corridor between the Yukon and Kuskokwim Rivers. The general location of the corridor is based on a long history of overland transport in the Portage Mountains area where the rivers come within 25-miles of one another. The project is borne of the need to improve fuel and freight deliveries in Western Alaska and to prepare for opportunities associated with the Alaska Natural Gas Pipeline project. When these opportunities come to fruition, the region will to be able to move quickly into design and construction.

The Corridor Plan has successfully:

- refined transportation goals,
- defined a general route location in the Portage Mountains area,
- identified cost-effective and environmentally sound port locations on Paimiut Slough and the Kuskokwim River,
- located five practical corridor routes between ports, and
- located adequate material sources to support construction and maintenance operations.

Although existing freight and fuel delivery operations are sure to change over time, connecting the AVCP and TCC regions would improve transportation of freight and fuel movements between the rivers in both directions. AVCP has worked toward a goal of finding a suitable transportation corridor that will enhance the lives of communities in both the AVCP and TCC regions.

Central to project development success has been the ability to combine the FHWA PEL methodology with traditional and trusted ways of communicating with village elders, leaders, and residents. This process is being used to meet local goals of objectively analyzing project opportunities and challenges, and reporting the findings in a clear and concise way.

With an overarching goal of understanding the issues, challenges, public needs, opportunities, and how to be best prepared for the future design and construction of the freight and energy corridor.

Photo credit: Stephen R. Braund and Associates



*Photo credit Ann Riordan*

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