

# YKTP Yukon Kuskokwim Delta TRANSPORTATION PLAN



## Executive Summary

March 2018



# EXECUTIVE SUMMARY

## Purpose

The purpose of the Yukon-Kuskokwim Delta Transportation Plan (Plan) is to inventory transportation facilities and issues, and document transportation needs. The Plan identifies, prioritizes, and recommends the top five regionally significant projects<sup>1</sup> for each mode of transportation (aviation, marine, and surface) in the Yukon-Kuskokwim Delta (Y-K Delta). The Y-K Delta is in critical need of basic infrastructure necessary for daily life activities including transportation, facilities, housing, water and sewer, and utilities.

The Plan is a 20-year, multimodal, regional transportation plan including various vehicle fleets (e.g. planes, all-terrain vehicles [ATVs], snow machines, barges, skiffs, and automobiles), and modes (e.g. aviation, surface, and marine) of transportation. The Plan is one of six area transportation plans being incorporated into the Alaska Statewide Long-Range Transportation Plan (LRTP). This is an update to the original Y-K Delta Transportation Plan (2002 YKTP). The Plan is not a programming document. Communities, tribal and city governments, and funding agencies should use this plan as a tool to secure funding for projects from multiple funding sources. The vision for the Plan is:

### VISION STATEMENT



**The Yukon-Kuskokwim Delta Transportation Plan will guide transportation decisions in the Yukon-Kuskokwim region by promoting safety, livability, economic development, and intermodal connectivity throughout the transportation system.**

<sup>1</sup> A regionally significant project is one that provides connection between two or more communities; provides access to public facilities such as hospitals, schools, jobs etc.; or provides access to alternative modes of transportation.

## Regional Overview

The Y-K Delta is one of the largest deltas in the world stretching across 59,000 square miles. Approximately 26,000 residents live in the region, and 85 percent of the population are Yupik Eskimos and Athabaskan Indians mostly living a subsistence lifestyle. The region includes 56 remote communities, and the largest hub community is Bethel, which is home to approximately 6,300 residents. Local governance and services are provided by 56 federally recognized tribes, cities, a regional Native corporation (Calista), and several large regional non-profit organizations including the Association of Village Council Presidents (AVCP) and the Yukon Kuskokwim Health Corporation (YKHC). The Y-K Delta has critical needs for basic infrastructure to support daily life, including transportation, housing, water and sewer, and utilities.



*Children in Newtok, Alaska*

## Transportation in the Region

The Y-K Delta is a vast remote area, with relatively long travel distances between villages. The ground conditions comprise mostly wetlands and permafrost soils. The winter climate is harsh. There is a lack of good infrastructure building materials, such as gravel. Because the 56 communities in the Y-K Delta are not connected to the state of Alaska's National Highway System (NHS) or the Alaska Highway System (AHS), Y-K Delta residents use a system of airports, rivers, ports, barge landings, and trails for transportation to, from, and within the region.

Transportation choices vary by season. Given the lack of inter-village roads and wet, lowland conditions in much of the region, overland travel is not common. In the summer months, river transportation is by skiff or small boat, with barges bringing in fuel and freight. In winter months, river travel is by snow machine, dog sled, or passenger vehicle (via ice roads and winter trails). In colder months, fuel and freight must

be flown in, as barges are unable to navigate the frozen rivers. During the freeze-up period in the fall and break-up period in the spring, river travel is dangerous and overland travel is extremely difficult, leaving air travel as the most viable option. However, even as the most viable mode of transportation, air travel is often expensive and highly weather dependent.

Two critical planned developments in the region that greatly influenced several of the recommend projects were the YKHC hospital expansion and Donlin mine. The transportation network in Bethel is dependent on Chief Eddie Hoffman Highway, which is approaching greater than 10,000 vehicles per day. Major improvements and a connector road between Chief Eddie Hoffman Highway and Ptarmigan Street are needed. Because Bethel is a hub community and is growing rapidly, transportation solutions were identified throughout this planning process and are included in this section. Bethel surface and marine projects evaluated and recommended for prioritization in the Plan, will support these large regional projects that are currently being planned/developed. Additionally, there is currently no transportation grid in Bethel to help relieve congestion along the main highway and vehicles per day are approaching greater than 10,000.

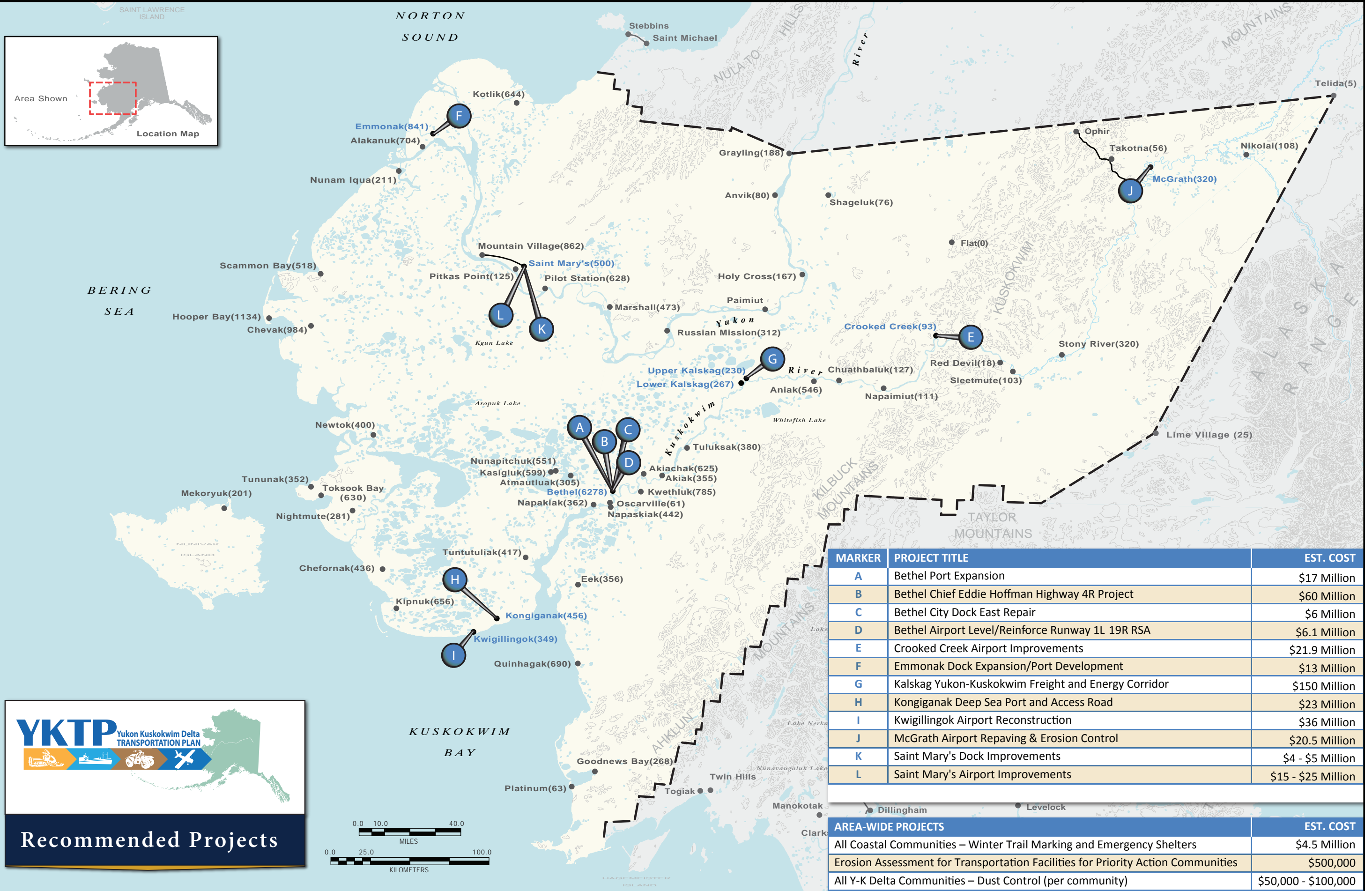
## Transportation Recommendations

The recommendations below are listed in alphabetical order and do not reflect a level of priority. Regionally significant projects are grouped by aviation, surface and marine projects. The planning team, along with significant public input, developed four goals and evaluation criteria identified in Section 3.1 and Figure 3 (Safety, System Preservation, Connectivity, and Economic Value), during the early part of the planning process to help guide the identification and recommendation of projects for this plan. Projects were then evaluated to determine which ones were regionally significant . A total of 107 (40 aviation, 40 land, and 27 marine) projects were determined regionally significant by the planning team. A project evaluation team comprising of members from the planning team and representatives from DOT&PF then evaluated and scored the projects using the goals, and evaluation criteria developed for the Plan. The scoring process, project list, and scores were then shared with a Transportation Advisory Committee (TAC) for final input. Meeting notes from the TAC review of the list of projects can be found in Appendix A. The goals, evaluation criteria, and project list used to develop recommendations can be found in Appendix H. Recommended projects that were prioritized using this process are identified on the following pages.

**The Plan does not guarantee the recommended projects will be funded. DOT&PF, communities, and agencies can use the Plan to seek funding from various funding sources.**

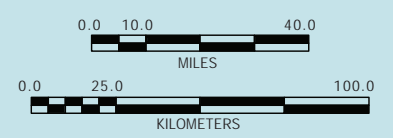
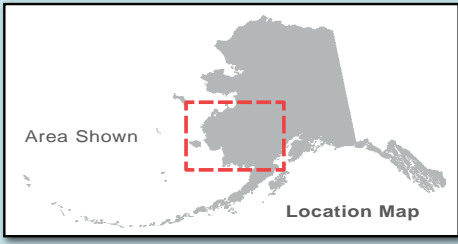






**YKTP** Yukon Kuskokwim Delta TRANSPORTATION PLAN

**Recommended Projects**





## Bethel Port Expansion

### Scope

This project adds a 721-foot sheet pile dock adjacent to the existing petroleum dock, extending from the existing seawall to the existing boat launch area. Extension to create a larger dock face is feasible but would cause displacement of the boat launch area, which is used by regional residents when they visit Bethel for medical or other reasons. Approximately 20 percent of petroleum products that arrive at Bethel is transported using the petroleum dock, and about 2.5 million gallons of petroleum is distributed to surrounding villages along the Kuskokwim River.

### Status

The project identified in the City of Bethel (City) Capital Improvement Plan. The City is working to secure funding from the State.

### Planning Estimate

\$17 million (Source: PND Engineers and City of Bethel - 2010 Port of Bethel Expansion Feasibility Study)



Bethel Port



## Bethel Chief Eddie Hoffman Highway 4R Project

### Scope

This project will provide a 4R<sup>2</sup> on the Chief Eddie Hoffman Highway, which is the main highway between the City of Bethel and the airport. A 4R project involves major reconstruction activities such as widening to provide additional through travel lanes, horizontal or vertical re-alignment, and bridge replacement work. This project will consider three roundabouts with all-way stops, including two at the hospital and one at Watson's Corner. The improvements include three-lane widening past the Post Office to Hanger Lake Road, an improved pedestrian pathway, signage, safety lighting, and crosswalks/signals for pedestrians and non-motorized transportation users.

### Status

DOT&PF completed a Traffic Impact Assessment (TIA) to analyze the traffic impacts generated by the YKHC hospital expansion and clinic project. The TIA provided information regarding average daily traffic in the area which is currently approaching levels greater than 10,000 vehicles per day. DOT&PF is currently working on a 1R<sup>3</sup> project on the Chief Eddie Hoffman Highway to address some of the safety and surfacing concerns on the highway.

### Planning Estimate

\$60 million (Source: DOT&PF)

- 2 A transportation reconstruction project that consists of a new roadway or upgrade to an existing roadway to meet geometric design criteria for a new facility. In addition to work described under resurfacing, restoration and rehabilitation, reconstruction work generally includes substantial changes in the geometric character of the highway, such as widening to provide additional through lanes and horizontal or vertical realignment, and major improvements to the pavement structure to provide long term service. Reconstruction work includes bridge replacement work.
- 3 A transportation reconstruction project that consists of basic rehabilitation of an existing transportation facility. A 1R project only improves an existing transportation facility. It does not consist of new construction.





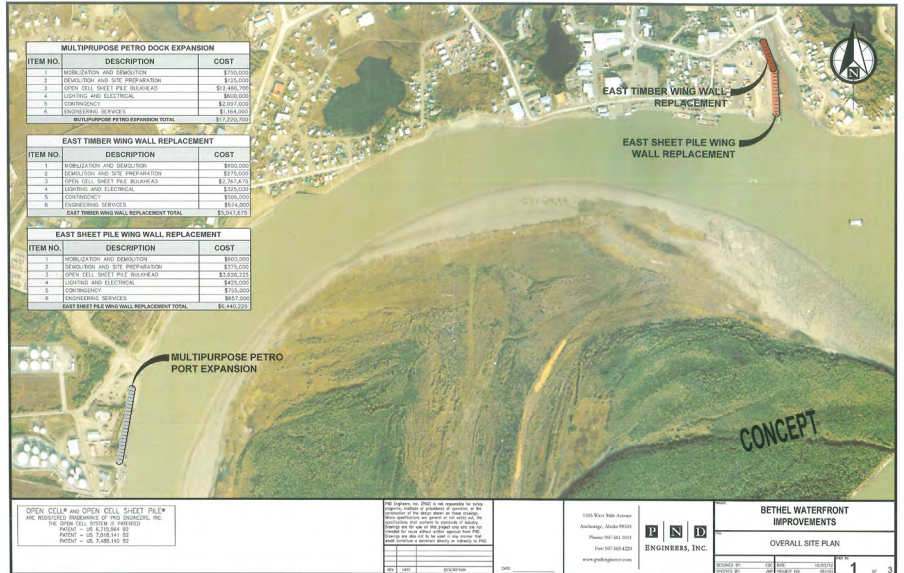
## Bethel City Dock East Repair

### Scope

Replace the failing east timber wing wall of the city dock, to the south of the bridge over Brown's Slough. The timber wall would be replaced with a sheet pile design, to tie into the existing sheet pile wall.

### Status

The project is identified in the City of Bethel Capital Improvement Plan. The City is working to secure funding from the state. If funding is not secured for this project, the existing infrastructure will continue to deteriorate, causing issues for fuel and freight delivery to communities along the Kuskokwim River.



Bethel Dock Design Concept

### Planning Estimate

\$6 million (Source: PND Engineers and City of Bethel - 2010 Port of Bethel Expansion Feasibility Study)



## Bethel Airport Level/Reinforce Runway 1L-19R Runway Safety Area

### Scope

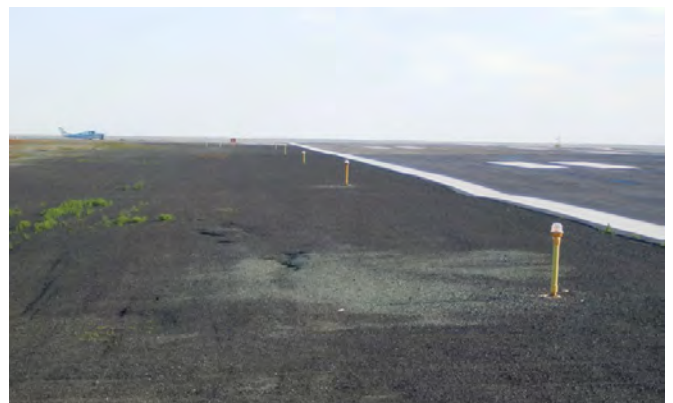
Fill and compact the runway safety area near the Bethel runway bump. Install Precision Approach Path Indicators (PAPI). Bethel is a Regional Class Airport.

### Status

The DOT&PF Aviation Evaluation Board has evaluated this project, but it is not recommended for funding in the next few years.

### Planning Estimate

\$6.1 million (Source: DOT&PF Airport Improvement Program Spending Plan)



Bethel Runway



## Crooked Creek Airport Improvements

### Scope

The project implements the 0-5-year recommendations of the Crooked Creek Airport Master Plan. It will bring the existing sub-standard airport up to standards. The existing 1997' x 60' runway will be expanded to 3,300' x 75' and a 250' x 300' aircraft apron will be constructed. The RSA will be expanded to 3,900' x 150' and terrain penetrations will be removed. A new taxiway will be constructed. Medium Intensity Runway Lighting will be installed along with Precision Approach Path Indicators, Runway End Identifier Lights and an Automated Weather Observation System. A new, two-bay heated SRE building will be constructed. Property acquisition will occur to accommodate the improvements.

### Status

The DOT&PF Aviation Evaluation Board has evaluated this project, but it is not recommended for funding in the next few years.

### Planning Estimate

\$21.9 million

(Source: DOT&PF Airport Improvement Program Spending Plan)



Crooked Creek Airport



## Emmonak Dock Expansion/Port Development

### Scope

The Port of Emmonak is used for trans-shipment of heavy and bulk items to other Y-K Delta coastal and Yukon river communities. The AVCP and Calista Corporation are supporting the City of Emmonak and Yukon Delta Fisheries Development Association (YDFDA) in their efforts to see the Lower Yukon Region Port and Dock constructed in Emmonak. This project will expand the dock and develop a deep-water port. The banks of the Yukon River currently serve as the dock, and need constant reinforcement.

### Status

The project is identified in the City of Emmonak's transportation plan. The design is complete, and the City of Emmonak is seeking construction funding to complete the project.

### Planning Estimate

\$13 million (Source: City of Emmonak)





## Kalskag Yukon-Kuskokwim Freight and Energy Corridor

### Scope

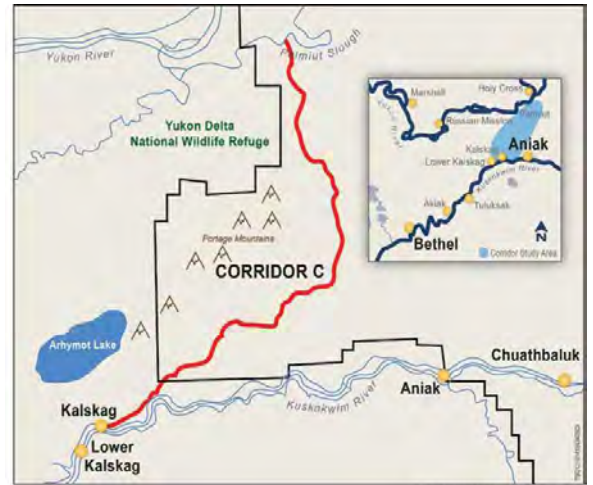
The Yukon-Kuskokwim Freight and Energy Corridor project seeks to develop a 44-mile gravel haul road between the Yukon and Kuskokwim Rivers systems to enhance connectivity among communities in the region. The proposed corridor will allow for travel, trade (fuel and freight), and access to public facilities and other modes of transportation within the Y-K Delta.

### Status

The project is identified in the Bureau of Land Management Resource Management Plan and is a high priority for Y-K Delta residents, the community of Kalskag, and AVCP. The State of Alaska has appropriated \$450,000 to the AVCP to advance the project toward development, including an engineering, economic, and environmental evaluation of the road corridor and regions it will serve. In 2012, the State of Alaska appropriated an additional \$3 million for corridor planning and development. The project is still currently in the planning phase.

### Planning Estimate

\$150 million (Source: CH2M Corridor Plan)



YK Freight Corridor Project Study Area



## Kongiganak Deep Sea Port and Access Road

### Scope

This project will provide a new port to allow for safe and efficient fuel and freight delivery to Kongiganak and surrounding villages. It will develop a new barge site on the river, as the existing barge site is becoming too shallow due to silting. The project could potentially provide a safe harbor for hunters and travelers.

### Status

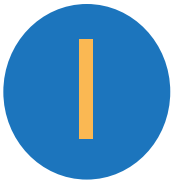
The project is identified in the AVCP's FY13 Community Economic Development Plan. AVCP and the Kongiganak Tribe have secured \$500,000 to commence design of this project.

### Planning Estimate

\$23 million (Source: AVCP)



Kongiganak



## Kwigillingok Airport Reconstruction

### Scope

This project will reconstruct and expand the existing 1,835-foot runway to 3,300-foot by 60-foot runway plus taxiway, construct a new apron, install an airport lighting system and navigation aids, and construct two single-bay snow removal equipment buildings. The project will also install erosion protection for the runway embankment along the tidal slough and may include some stream realignment.

### Status

Project is currently programmed in the Airport Improvement Program (AIP) and is a top priority for DOT&PF because Kwigillingok's short runway is in very poor condition and because the airport is a mini-hub in the region, with flights to other airports with much longer runways.

### Planning Estimate

\$36 million (Source: DOT&PF Airport Improvement Program Spending Plan)



*Kwigillingok Airport*



## McGrath Airport Repaving & Erosion Control

### Scope

This project will rehabilitate and repave the runway, taxiways, and apron pavement; correct/mitigate the erosion problems at the south end of Runway 16/34; and expand or replace the existing snow removal equipment building.

### Status

Project was identified during a site visit to McGrath. Resurfacing and erosion control is currently being designed, and construction is anticipated in 2019.

### Planning Estimate

\$20.5 million (Source: DOT&PF)



*DOT&PF staff and McGrath leaders viewing erosion problems at McGrath airport*



*McGrath Airport*



## Saint Mary's Dock Improvements

### Scope

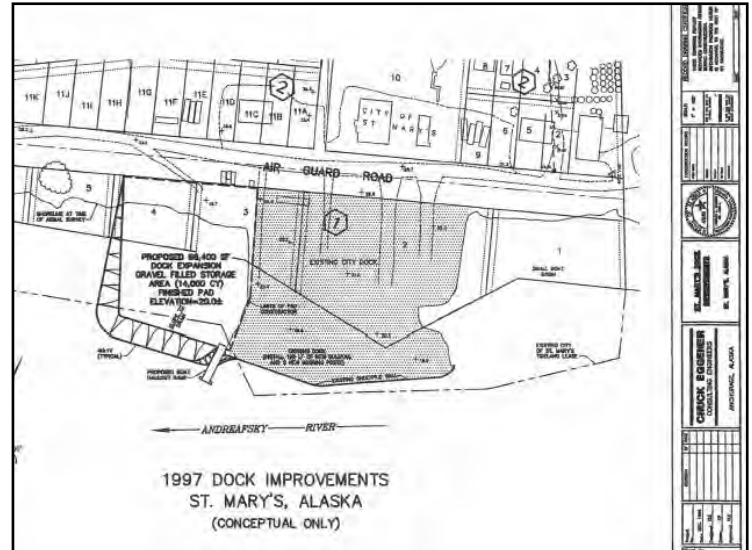
This project will provide dock improvements to allow better access to barges that deliver cargo and fuel to Yukon river villages. It will increase the size of the dock by approximately 66,000 square feet, creating additional cargo and equipment storage space, construct additional mooring posts for more convenient vessel moorage, provide a haul-out ramp for vessels requiring on-shore hull and power train repairs, allow multiple cargo vessels to tie-up to the port and transfer/consolidate loads, allow simultaneous gravel loading or fish processing during periods of high cargo vessel activity, and increase the revenue generation and self-sufficiency of the port.

### Status

This project is new, and funding has not been assigned.

### Planning Estimate

\$4-5 million (Source: City of St. Mary's)



*St. Mary's Dock Concept Design*



## Saint Mary's Airport Improvements

### Scope

This project will rehabilitate all operating surfaces and replace airport lighting. Additionally, it will address runway safety area deficiencies, replace the 5,000-gallon fuel tank, clear vegetation, and apply dust palliative.

### Status

Programming of this project has been deferred pending the outcome of a study requested by FAA to confirm the amount of runway length needed, and how to address runway safety area deficiencies. The improvement project is programmed in 2020 for construction.

### Planning Estimate

The project estimate is pending completion of a planning study that will confirm the project scope. The project is likely to be between \$15 and \$25 million. (Source: DOT&PF Airport Improvement Program Spending Plan)



*St. Mary's Airport*



## Winter Trail Marking and Emergency Shelters

### Scope

Winter trail markers are needed to improve safety for inter-community travel along the commonly used winter routes. The trail markers will not only serve as a visual aid for path finding, but they will also provide GPS coordinates for travelers to determine their exact location. Emergency safety shelters placed along the routes would provide refuge during winter storms for the travelers using these trails.

### Status

DOT&PF and AVCP have commenced a program of funding permanent markers in the Y-K Delta. AVCP is working on a winter trail marking project with 15 consortium tribes, and design was completed in May 2018/2019. The plan includes marking approximately 3,000 miles of routes between consortium villages, including safety shelters along the routes. Environmental impacts are being evaluated.



Winter Trail Marking

### Planning Estimate

\$4.5 million (Source: AVCP)

## Erosion Assessment for Transportation Facilities

### Scope

Existing transportation facilities in communities suffering from erosion are at risk. These facilities need to be a priority for transportation funding agencies. Napakiak and Newtok are the two communities experiencing the worst impacts from erosion. Other priorities identified by the U.S. Army Corps of Engineers (USACE) are Akiak, Alakanuk, Chefornek, Chevak, Emmonak, Kwigillingok, Lime Village, McGrath, and Nunapitchuk. Further investigation into the status of these needs is recommended.

### Status

Projects should be discussed with the Denali Commission and USACE. Both agencies may have the ability to provide support to these communities.

### Planning Estimate

\$500,000 (planning work only) (Source: DOWL)



Newtok, Alaska Barge Landing

## Dust Control

### Scope

The University of Alaska Fairbanks Research Center has highlighted that asthma and lung issues in the YK-Delta are directly related to dust and other airborne particles. Some of the villages are using water trucks to control dust. A dust control application for communities in the Y-K Delta will help improve residents' health.

### Status

The Alaska Department of Environmental Conservation continues to work with the DOT&PF, the Environmental Protection Agency, the Alaska Native Tribal Health Consortium, the University of Alaska Fairbanks, the Bureau of Indian Affairs, and others to develop practical solutions for controlling dust in rural Alaska and simplify the coordination needed to implement solutions.

### Planning Estimate

\$50,000 to \$100,000 per village  
(Source: UAF/DOT&PF)



*Dust at Community Airport*



**DOWL**

INSPIRATION ■ INNOVATION ■ INTEGRITY

## CONTACT INFORMATION

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