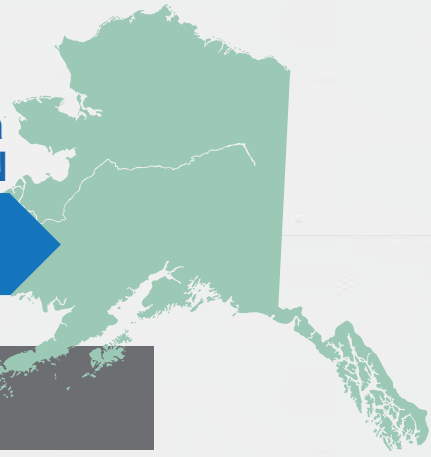


# YKTP Yukon Kuskokwim Delta TRANSPORTATION PLAN

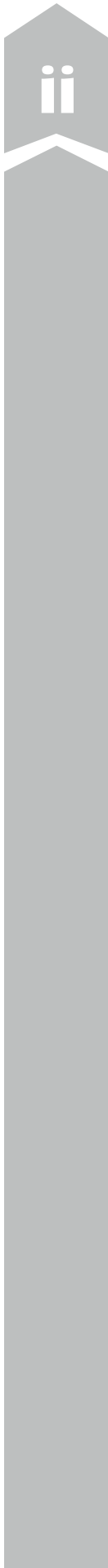


March 2018



# TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
2.0 TRANSPORTATION LEGISLATION AND GUIDANCE.....	2
3.0 PLANNING PROCESS .....	4
3.1 Planning Process.....	4
3.2 Public Involvement.....	7
3.2.1 Yukon-Kuskokwim Transportation Plan TAC Meetings.....	7
3.2.2 Public Meetings .....	7
3.2.3 Air Carrier Surveys.....	10
3.2.4 Newsletters.....	10
3.2.5 Conferences .....	10
3.2.6 Public Open House .....	11
4.0 EXISTING CONDITIONS, ISSUES, AND NEEDS .....	12
4.1 Economy.....	13
4.1.1 Employment and Income .....	13
4.1.2 Population.....	14
4.2 Yukon-Kuskokwim Health Corporation (YKHC) .....	15
4.3 Donlin Gold LLC.....	16
4.4 Aviation .....	17
4.4.1 Top 20 Airports: Flights, Enplaned Passengers, and Deplaned Cargo.....	26
4.4.2 Carriers/Fleet .....	28
4.4.3 Essential Air Service .....	28
4.4.4 Bypass Mail Program .....	28
4.4.5 Medical Transportation.....	34
4.4.6 Y-K Delta Aviation Forecast .....	34
4.4.7 Improving Existing Airport Facilities .....	36
4.4.8 Passenger Shelters .....	41
4.4.9 Seaplane Bases.....	42
4.4.10 AASP Performance Measures .....	43
4.5 Marine Transportation .....	44
4.5.1 Ports .....	45
4.5.2 Barge Moorings and Landings .....	48
4.5.3 Federal Freight Policy and Funding .....	49
4.6 Land Transportation .....	50
4.6.1 Roads.....	50
4.6.2 Boardwalks.....	51
4.6.3 Winter Trails and Ice Roads .....	51
4.6.4 Crash Statistics.....	54
4.6.5 Transit .....	55
4.6.6 Airborne Dust.....	55
5.0 IDENTIFIED NEEDS AND RECOMMENDATIONS.....	58
5.1 Identified Needs .....	58



5.2 Transportation Recommendations .....	58
6.0 AVAILABLE FUNDING SOURCES.....	69
6.1 Funding .....	69
6.1.1 State Sources of Capital Funding .....	73
6.1.2 Operating and Maintenance Funding.....	74
6.2 Measuring Success .....	75

## LIST OF FIGURES

Figure 1. Federal and State Policy Goals Considered for LRTP Development. ....	3
Figure 2. The Yukon-Kuskokwim Transportation Planning Process. ....	5
Figure 3. Goals and Evaluation Criteria. ....	6
Figure 4. Yukon-Kuskokwim Transportation Plan Stakeholders.....	7
Figure 5. YKTP Study Area Map .....	12
Figure 6. Donlin Mine Location.....	16
Figure 7. 2018 Existing Aviation Conditions Map.....	19
Figure 8. Y-K Delta Airport Inventory. ....	21
Figure 8. Y-K Delta Airport Inventory (Cont'd).....	23
Figure 8. Y-K Delta Airport Inventory (Cont'd).....	25
Figure 9. U.S. Department of Transportation Essential Air Service Map.....	31
Figure 10. Bypass Mail Program Hub and Spoke Map.....	33
Figure 11. Projected Annual Growth Rate of Enplanements. ....	35
Figure 12. Projected Annual Growth Rate of Inbound and Outbound Cargo.....	35
Figure 13. Projected Annual Growth Rate of Aircraft Operations. ....	35
Figure 14. Projected Annual Growth Rate of Based Aircraft. ....	36
Figure 15. Airport Classifications.....	39
Figure 16. Y-K Delta Community Airports Runway Lengths.....	40
Figure 17. Design Standards Index at Y-K Delta Airports. ....	43
Figure 18. Service Standards Index at Y-K Delta Airports.....	43
Figure 19. YK Freight Corridor Project Map.....	44
Figure 20. Marine Existing Conditions Map. ....	47
Figure 21. Existing Road Network in the Y-K Delta. ....	53
Figure 22. Winter Trails and Ice Road Map.....	57
Figure 23. Recommended Projects.....	61
Figure 24. Historical Funding for DOT&PF M&O Highways and Airports.....	74

# LIST OF TABLES

Table 1. Annual Per Capita Income for the Bethel and Kusilvak Census Areas.....	14
Table 2. Forecast of Population for the Bethel, Kusilvak, and Yukon Koyukuk.....	14
Table 3. Top 20: Flights, 2015.....	26
Table 4. Top 20: Enplaned Passengers, 2015.....	27
Table 5. Top 20: Deplaned Cargo, 2015.....	27
Table 6. Current Bypass Mail Hub and Destination Airports in the Y-K Delta.....	32
Table 7. Y-K Airports Overview.....	36
Table 8. Y-K Delta Relocated .....	37
Table 9. FAA Registered Seaplane Bases in the Y-K Delta Region.....	42
Table 10. Existing YKTP Roads Connecting Communities in the Y-K Delta.....	50
Table 11. 2016-2020 FHWA Formula Funding Allocation for Transportation Projects and Programs.....	70
Table 12. FAA Airport Funding of Y-K Delta Airports FFY 2003-2014.....	73

## APPENDICES (REFERS TO SEPARATE VOLUME)

- Appendix A. Public Involvement
- Appendix B. Aircraft Descriptions
- Appendix C. Mail Service
- Appendix D. Aviation Forecasts
- Appendix E. Proposed USACE Barge Landing Projects
- Appendix F. Rural Dust Frequently Asked Questions
- Appendix G. City of Bethel Memo for Projects
- Appendix H. Identified Needs, Y-K Delta Identified Projects, Goals, and Evaluation Criteria



## ACRONYMS

2002 YKTP	Yukon-Kuskokwim Delta Transportation Plan
AASP	Alaska Aviation System Plan
ADA	Americans with Disabilities Act
ADEC	Alaska Department of Environmental Conservation
AHS	Alaska Highway System
AIP	Airport Improvement Program
APEB	Aviation Project Evaluation Board
ATV	All-terrain vehicle
AVCP	Association of Village Council Presidents
AWOS	Automated Weather Observation Systems
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CDBG	Community Development Block Grant
DCCED	Alaska Department of Commerce, Community, and Economic Development
DNR	Department of Natural Resources
Donlin	Donlin Gold, LLC
DOT&PF	State of Alaska Department of Transportation and Public Facilities
EAS	Essential Air Service
EDA	Economic Development Administration
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
FAST	Fixing America's Surface Transportation
FHWA	Federal Highway Administration
FLAP	Federal Lands Access Program
FLH	Office of Federal Lands Highway
FTA	Federal Transit Administration
GPS	Global Positioning System
HSIP	Highway Safety Improvement Program
HUD	U.S. Department of Housing and Urban Development
ICS	Instrument Landing System
LP	Localizer Performance
LPV	Localizer Performance with Vertical Guidance
L RTP	Alaska Statewide Long-Range Transportation Plan
L RTP Update	Alaska 2036 L RTP Update
MAP-21	Moving Ahead for Progress in the 21st Century
MOU	Memorandum of Understanding
MPDs	Metropolitan Planning Organizations
mph	Miles per hour
NEPA	National Environmental Policy Act
NHFN	National Highway Freight Network
NHPP	National Highway Performance Program
NHS	National Highway System

NPIAS	National Plan of Integrated Airport Systems
OFZ	Obstacle Free Zone
PAPIs	Precision Approach Path Indicators
PIP	Public Involvement Plan
Plan	Yukon-Kuskokwim Delta Transportation Plan
RNAV	Area Navigation
ROW	Right-of-way
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RVZ	Runway Visibility Zone
SPBs	Seaplane Bases
SRC	Sub-Regional Clinic
STBG	Surface Transportation Block Grant
STIP	Statewide Transportation Improvement Plan
TAC	Transportation Advisory Committee
TAP	Transportation Alternatives Program
TCC	Tanana Chiefs Conference
TIA	Traffic Impact Assessment
TIGER	Transportation Investment Generating Economic Recovery
TSS	Threshold Siting Service
TTPSF	Tribal Transportation Program Safety Funds
TTP	Tribal Transportation Program
UAF	University fo Alaska Fairbanks
USACE	U. S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USPS	U.S. Postal Service
WAAS	Wide Area Augmentation System
WFLHD	Western Federal Lands Highway Division
Y-K Delta	Yukon-Kuskokwim Delta
Y-K	Yukon-Kuskokwim
YDFDA	Yukon Delta Fisheries Development Association
YKHC	Yukon-Kuskokwim Health Corporation

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# 1.0 INTRODUCTION

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.**



Aniak Airport

<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.



## 2.0 TRANSPORTATION LEGISLATION AND GUIDANCE

To receive federal and state funding, this Plan must align with the federal policy guidelines outlined in the Fixing America's Surface Transportation (FAST) Act of 2015 and the State of Alaska's transportation planning regulations (17 AAC 05) and statutes (AS 19.10.010) Dedication of Land for Public Highways. Aviation projects should also align with the aviation performance measures from the Alaska Aviation System Plan (AASP).

The FAST Act, like its predecessor the Moving Ahead for Progress in the 21st Century Act of 2012 (also known as MAP-21), focuses on incorporating performance goals, measures, and targets into the planning and programming process to move states toward developing outcome-based programs. National performance measures have recently been finalized, and the State of Alaska Department of Transportation and Public Facilities (DOT&PF) is preparing for full implementation of FAST Act policies by considering FAST Act goals and performance measures in each of its area transportation plan updates. Additionally, Federal Aviation Administration (FAA) goals have been considered in the aviation section of this Plan (Figure 1).

Surface transportation projects in the Y-K Delta are primarily funded by Bureau of Indian Affairs (BIA), Federal Highway Administration (FHWA), and Tribal Transportation Program (TTP) funds. These funds are typically used for small local projects and maintenance. Funding for aviation projects is primarily from FAA through the Airport Improvement Program (AIP). The Plan can be used by communities, tribal entities, tribal organizations and consortiums, the State of Alaska, and other agencies to seek funding for projects from various transportation funding agencies. This Plan also provides a list of project needs and recommended project priorities. Many of the projects recommended in the Plan will need to be funded by multiple transportation funding sources. For example, a surface transportation project may be able to be fully developed jointly by DOT&PF, TTP, and FHWA.

Although DOT&PF, FHWA, and FAA funded the Plan, they are not able to commit to funding the projects recommended. They will, however, consider the findings of the Plan when funding is available and they are seeking to deliver projects that have been identified/recommended in the Plan.

**The Plan can be used by communities, tribal entities, tribal organizations and consortiums, the State of Alaska, and other agencies to seek funding for projects from various transportation funding agencies.**



Figure 1. Federal and State Policy Goals Considered for LRTP Development.

## Federal & State Policy Goals Considered in LRTP Development

### FAST Act Performance Area Goals

#### Safety

Achieving a significant reduction in traffic fatalities and serious injuries on all public roads

#### Infrastructure Condition

Maintaining highway infrastructure asset system in a state of good repair

#### Congestion Reduction

Achieving significant reduction in congestion on the National Highway System (NHS)

#### System Reliability

Improving the efficiency of the surface transportation system

#### Freight Movement and Economic Vitality

Improving the national freight network, strengthening the ability of rural communities to access national and international trade markets, and supporting regional economic development

#### Environmental Sustainability

Enhancing performance of the transportation system while protecting and enhancing the natural environment

### LRTP Policy and Action Areas

The State's Long Range Transportation Plan (LRTP) was undergoing revision when this Plan was originally developed, providing some challenges in coordinating common goals. The two plans are again being drafted simultaneously. However, the existing LRTP, which created eight policy and action areas, provides solid guidance for this Plan. The policy and action areas identified in the current LRTP are:

1. New Facilities
2. Modernization
3. System Preservation
4. System Management and Operations
5. Economic Development
6. Safety and Security
7. Livability, Community, and the Environment
8. Transportation System Performance

### FAA Goals

#### Runway Safety Areas

Improvements at Part 139 (hub) airports completed by September 30, 2015

#### Rural Access

Direct Airport Improvement Program funding for pavement reconstruction projects as identified in the Airport Capital Improvement Program process

#### Pavement Condition

Identify pavement condition improvement projects that will ensure no less than 93% of runways at airports in the National Plan of Integrated Airport Systems are maintained in excellent, good, or fair condition

## 3.0 PLANNING PROCESS

The FHWA and DOT&PF public involvement and transportation planning processes were used in the development of the Plan. Section 3.2 provides more information on the public outreach undertaken. The public involvement plan (PIP), presentations, meeting notes, survey responses, and other public involvement material can be found in Appendix A. A project website was used to disseminate documents and explain the purpose, process, and status of the Plan and public involvement efforts.

### 3.1 Planning Process

The transportation planning process that was followed (Figure 2), includes:

1. **PIP:** The PIP was developed in accordance with FHWA and state of Alaska public involvement guidelines.
2. **Plan Review:** A thorough review of Tribal LRTPs, local and regional plans was conducted to provide a baseline of existing information and transportation needs. Plans reviewed include the 2002 YKTP, local comprehensive plans, and other regional planning documents such as the United States Army Corps of Engineers (USACE) Barge Landing Assessment and the Alaska Ports and Harbors Studies. Tribal LRTPs and other plans are available upon request.
3. **Vision, Goals, and Evaluation Criteria:** The vision statement, goals, and evaluation criteria developed in the early stages of the planning process were used to evaluate, consider, and justify the recommended projects. The planning team used goals articulated in the FAST Act, FAA guidance, and the State of Alaska LRTP (Figure 1) as a starting point, and then sought feedback on the goals from Y-K Delta residents and stakeholders to verify they are appropriate for the Plan and the Y-K Delta region. The four prevailing goals are Safety, System Preservation, Connectivity, and Economic Value (Figure 3).
4. **Document Existing Conditions:** The transportation inventory from the 2002 YKTP was updated, which included travelling to Bethel, St. Mary's, Emmonak, and McGrath to review the 2002 YKTP existing conditions maps, and conducting an inventory of existing transportation facilities. Interviews were held with a broad range of stakeholders involved in the transportation system in the Y-K Delta, including the Association of Village Council Presidents (AVCP), BIA, DOT&PF aviation and surface transportation staff, and aviation and transportation providers.
5. **Identify Issues and Needs:** Issues and needs were identified by completing aviation, surface, and marine analyses; surveys; community meetings; interviews; conference attendance; and presentations. A project list based on the evaluation of issues, needs, and reviews of other studies can be found in Appendix H.
6. **Determine Regionally Significant Projects:** The project list was reviewed by DOT&PF to determine which projects were regionally significant. The regionally significant projects are identified on the list found in Appendix H. Regionally significant projects were scored. Projects that were reviewed but determined to not be regionally significant remain on the list, but did not receive a score. The full list of projects, both identified needs and regionally significant projects, are considered a critical element to the Plan. All projects identified in Appendix H should be considered for future funding and development.

**The four prevailing goals are Connectivity, System Preservation, Economic Value, and Safety.**



7. **Evaluate Projects:** Regionally significant projects were evaluated using the goals and evaluation criteria created for the Plan (Figure 3). The planning team completed the evaluation and reviewed the projects and scores with the Transportation Advisory Committee (TAC).
8. **Recommend Projects:** Following evaluation, the projects were scored and prioritized. The highest scored projects enabled the selection of the top five project recommendations for each mode of transportation (Figure 23).
9. **Public Review:** The first draft of the Plan was available for public review for 45 days. Copies were also sent to key stakeholders who develop infrastructure in the Y-K Delta for comment (Figure 4).
10. **Finalize the Plan:** The final Plan was prepared with consideration and documentation of public comments, adopted by DOT&PF, and is not fiscally constrained. Communities, tribal entities, tribal organizations and consortiums, DOT&PF, and other stakeholders may choose to partner to develop and fund the recommended projects listed in the Plan.

Figure 2. The Yukon-Kuskokwim Transportation Planning Process.

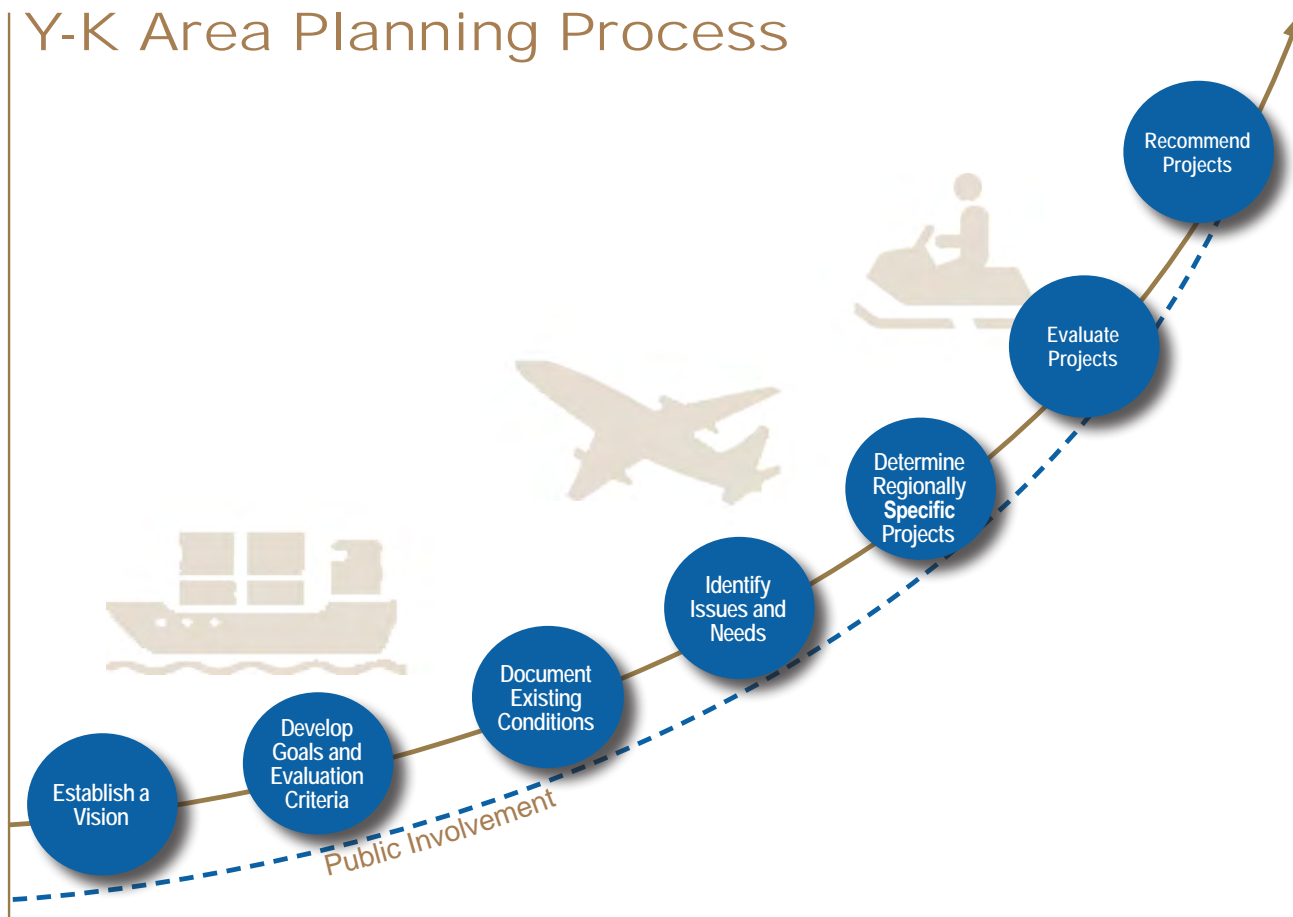


Figure 3. Goals and Evaluation Criteria.

# 1 Safety

Improve operational safety and security and helps reduce risks for the Yukon Kuskowim Delta Alaska transportation system use.

## Evaluation Criteria

- 4 Critical need with immediate health or safety consequences if not pursued. Project provides services for access to Yukon Kuskowim Health Corporation Services. Meets a critical safety need or FAA standard at a Regional Class airport.
- 3 Addresses a health and safety hazard. Meets a critical safety need or FAA standard at a Community or Local Class airport.
- 2 Improves health and safety through improved conditions. Project marks trails on rivers or channels. Addresses a non-critical safety hazard noted by airport owner or airport users.
- 1 Minimal impact on health and safety.

# 2 System Preservation

Preserve and maintain the existing Yukon Kuskowim Delta Transportation System.

## Evaluation Criteria

- 4 Critical need for rehabilitation, will need reconstruction if delayed. Project maintains existing system that provides access to multiple communities and modes of transportation.
- 3 Improves or rehabilitates existing facilities. Project is sustainable for the entity responsible for maintenance and operations of the facility.
- 2 Reconstruction. Project provides preventive maintenance on the existing transportation system.
- 1 Adds additional infrastructure to be maintained.

# 3 Connectivity

Improve intermodal connections and provide access to airports, barge landings, ports or docks; provide access to fisheries, public services and facilities such as health clinics, hospitals, and schools; and focus on projects that provide more than two communities with connectivity to other communities within or outside the region.

## Evaluation Criteria

- 4 Critical need with immediate health or safety consequences if not pursued. Project improves access to multiple communities or other modes of transportation. Project connects users with major intermodal transportation hubs.
- 3 Rationalizes existing intermodal facilities, or addresses a shortcoming in an existing transportation corridor. Project enhances rural transportation and provides access to other modes, public facilities, and jobs in the region.
- 2 Adds new infrastructure to feed other systems. Project improves bike and pedestrian facilities that access other modes of transportation.
- 1 Minimal impact on connectivity. Project is in a hub community.

# 4 Economic Value

Improve economic conditions locally and regionally; provide intermodal connections that enhances economic activity, bringing new businesses or money to the region.

## Evaluation Criteria

- 4 Critical need for access to economic opportunities. Project was identified in a planning study, such as the Alaska Aviation System Plan, United States Army Corp of Engineers (USACE), and Statewide Transportation Improvement Program.
- 3 Supports improved access for regional commerce, including workforce access and reduced cost of living. Project supports communities that operate small businesses, exporting items such as fish, groceries, supplies, fuel, Alaska Native art work, and other goods. Project supports tourism by providing access to recreational activity, shopping, events, and community.
- 2 Provides access for new economic activity.
- 1 Minimal impact on economic advancement.

*Note: The evaluation criteria numbers are the scores used to evaluate and rank the projects.*

## 3.2 Public Involvement

A robust public involvement process was a key part of the Plan. The primary goal of engaging the public was to identify common Y-K Delta transportation priorities and stakeholders who may be a part of implementing projects identified in the Plan.

Figure 4 includes the stakeholders involved in the planning process for the Plan.

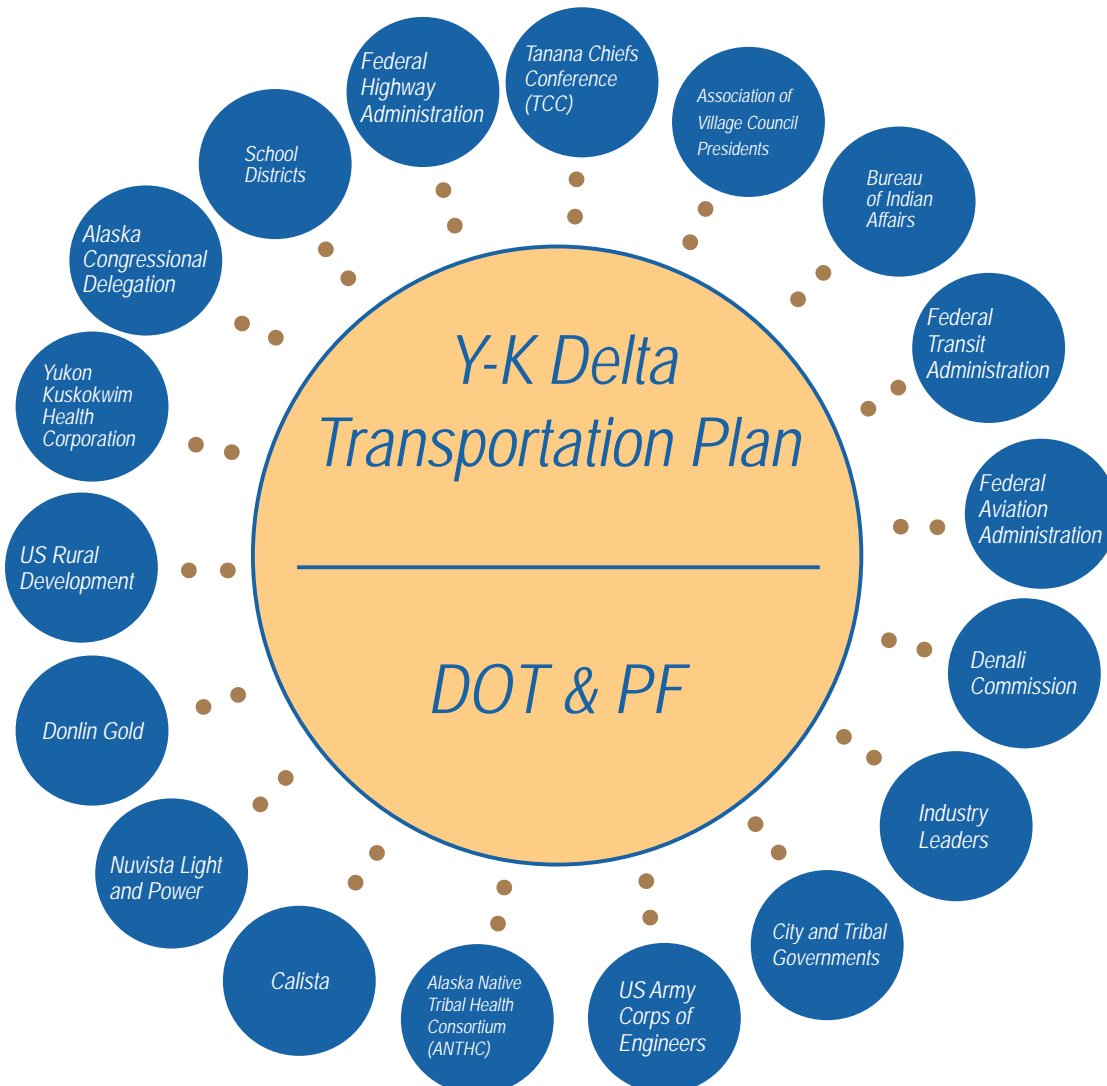
### 3.2.1 Yukon-Kuskokwim Transportation Plan TAC Meetings

The TAC met three times and provided the planning team with guidance on public outreach, data gathering and research, and project prioritization.

### 3.2.2 Public Meetings

Public meetings and site visits were conducted at four hub communities<sup>2</sup>. A public survey was handed out at each meeting and was available on the project website. A list of the meetings and a summary of needs identified via the public meetings and surveys is set out on the following pages.

**Figure 4. Yukon-Kuskokwim Transportation Plan Stakeholders.**



<sup>2</sup> For this Plan, a community is considered a hub if it serves as a location for Bypass Mail, has a sub-regional health clinic or school, and services surrounding villages.

### St. Mary's Public Meeting: April 10, 2015

- *Airport Improvements:* Various airport improvements are needed to continue to support fuel and freight delivery for St. Mary's and surrounding villages.
- *Dock Improvements:* Improvements are needed to continue shipping from the port to allow for distribution of fuel and freight to surrounding villages.

### Bethel Public Meeting: April 15, 2015

- *Winter Trail Markers:* Better winter trail markers are needed to help reduce crashes and the risk of residents getting lost on the existing trail systems.
- *Oscarville and Napakiak to Bethel:* Residents expressed a need to connect Oscarville and Napakiak to Bethel by road. AVCP is working on a 10-mile road between Oscarville and Bethel.
- *Complete Streets for Bethel:* The use of the local streets in Bethel by ATVs, snow machines, vehicles, bicyclists, and pedestrians is a public health and safety concern. A Complete Streets policy was developed and passed by the City of Bethel in September 2015. This policy was developed to support safe and convenient travel for all users of the Bethel transportation system. The public would like this policy to be considered for future transportation investments.
- *Transit for Bethel:* An expanded transit system is sought to provide more public transportation options than taxicabs. Improved marketing of the transit system to reach a broader audience in Bethel was also suggested.
- *Improve Marine Facilities in Bethel:* Marine facilities improvements are needed in Bethel and should be a priority for state and other transportation stakeholders. These facilities are the primary way that communities along the Kuskokwim River receive their freight and fuel.

- *Bridge Connections:* Short bridge connections that provide for ATVs and snow machines and can cross over wetlands connecting to the trail system should be considered between villages that are less than five miles apart.
- *Boardwalks:* Use paint to preserve boardwalks in communities that rely on them for transportation.
- *Passenger Shelters:* Passenger shelters are needed in village airports. Residents wait in the wind and cold to catch their plane.
- *Barge Landings:* Barge landing systems along the Kuskokwim River need to be maintained.
- *Yukon-Kuskokwim (Y-K) Freight Corridor Project:* The Y-K Freight Corridor project could help improve the lives of Y-K Delta communities by providing better connections between Yukon and Kuskokwim villages. Freight and fuel providers may also be able to reduce the cost of transporting freight and fuel by using this corridor. Additional public outreach was requested at this meeting.
- *Ports:* A port at the mouth of the Yukon River near Emmonak would facilitate arctic shipping. Strategically located ports would reduce the cost of local shipping.

### McGrath Public Meeting: May 15, 2015

- *Airport Improvements:* Improvements include resurfacing, obstruction/brush removal, a sweeper, and erosion control.
- *Road to Ruby:* This 145- to 165-mile route will connect McGrath to Ruby, providing access to a mining district with known mineral deposits. This project was identified in the 2002 YKTP as a high priority.
- *Road to Takotna:* This 15- to 20-mile route will also develop a section of the proposed road to Ruby by connecting McGrath to the north side of the Kuskokwim River to Takotna, and then on to Ruby.

- *Boat Launch/Aircraft Dock:* Provides floatplane and boat launch users with a safe place to dock and offload.
- *Noir Hill Landing Road:* A 1.8-mile road would provide access to rock and timber for construction projects. This is also a subsistence access road. Residents of McGrath use this road for berry picking and hunting.
- *Road from Parks Highway to McGrath:* A road connecting McGrath to the Parks Highway.

### Emmonak Public Meeting: May 19, 2016

- *Hub Communities:* The hub communities should be prioritized and focused on for regional development.
- *Emmonak Airport:* The airport needs a paved 200- by 6,000-foot runway to allow for larger aircraft. Cost of air freight will go down by using larger airplanes. Expanding the airport will benefit the surrounding 13 communities that come to Emmonak to fish, work, and visit family, the doctor, and public facilities such as the post office and health clinic.
- *Post Office:* The existing building is small and sometimes mail gets lost due to the large volume of mail delivered.
- *Port:* Construction funding is needed for the port. The existing barge loading facility does not have the capacity to handle the freight shipment. Emmonak spent \$516,000 to design and engineer the port. They now need approximately \$14 million for construction.
- *Fuel:* Emmonak would like liquid natural gas from the North Slope to help reduce the price of fuel.
- *Military:* Look into military aspects of hub communities so that in an emergency the military can take care of security in the region. Improve airports as well as aircraft so when emergencies happen, communities can be ready for military flights.
- *Fisheries and Subsistence:* The Lower Yukon River has a small regional fisheries economy that supports households in surrounding villages. The fisheries and subsistence lifestyle needs to be preserved. Residents would like to sell their salmon to markets throughout the world. This economy is very important to the Lower Yukon River villages (Emmonak, Alakanuk, Mountain Village, St. Mary's, Pilot Station, and Marshall). This area is dependent on a subsistence lifestyle to generate income and live off the land. The transportation system should accommodate this area to enable residents to continue their lifestyle and thrive in the fishery economy.
- *Tribal Sovereignty:* The Plan needs to recognize tribal sovereignty so tribes are heard. The government is responsible for tribal consultation (meaning the process of government-to-government dialogue between the federal government and Indian tribes).
- *Transportation Costs:* The cost of transportation is too high and a lack of competition results in high travel costs.
- *Economy:* During the fish processing season, large cargo aircraft are needed to ship more products out. Grant Aviation and Ravn Alaska are the two primary carriers operating in Emmonak. The typical size of the aircraft that operate in Emmonak now includes a Cessna C206/207/209/210, Cessna 208 Caravan, Beech 200 Super King Air, Piper Navajo/T-1020, and a McDonnell Douglas DC-6A. Ryan Air and Everts Air Cargo occasionally use the airport for cargo deliveries.
- *Bypass Mail:* Bypass Mail is critical for helping to keep the cost of freight down. Without Bypass Mail, shipping would be even more unaffordable.



### 3.2.3 Air Carrier Surveys

Air carrier survey responses are summarized below.

- *Aircraft Fleet to Remain Stable:* There are no plans for significant changes in the aircraft fleet serving the Y-K Delta.
- *Improvements Needed:* There was a general agreement on improvements needed, including lighting, weather systems, and runway improvements in several communities. These were documented and included in the project needs list.
- *Community Airports:* Primary needs include runway resurfacing, drainage, grading, weather stations, and approaches.
- *Regional Airports:* St. Mary's Airport's main runway should be paved. The bump in the main runway in Bethel needs to be levelled. The Bethel crosswind runway needs to be extended.
- *New United States Postal Service (USPS) Hubs:* New USPS hubs are not needed. There is not enough population growth to support a new hub. A new USPS hub could increase passenger fares for Y-K Delta residents and would require costly new infrastructure such as a longer runway, apron, and storage space.

### 3.2.4 Newsletters

Three newsletters were mailed out to the mailing list throughout the planning process:

- The first newsletter informed the public about the plan, schedule, process, and public involvement methods.
- The second newsletter informed the public of upcoming meetings and gathered input on the public survey.
- The third newsletter informed the public of the draft Plan completion, provided details on the online open house, and guided the public to the online open house website where they could review the draft plan and provide feedback and comments.

### 3.2.5 Conferences

Several conferences were attended to present information on the Plan, and gather input from conference attendees. A summary of the conferences attended and input received is provided below.

- **Tanana Chiefs Conference (TCC) Upper Kuskokwim Sub-Regional Advisory Board Meeting, March 2015**
  - *Y-K Freight Corridor Project:* Grayling, Aniak, Shageluk, and Holy Cross representatives requested additional public involvement for the AVCP Y-K Freight Corridor project. This is not a DOT&PF project.
  - A survey was provided to the attendees, no responses were received.
- **AVCP Conference, September 2015**
  - *Fuel:* Improvements to the transportation system need to be focused on helping reduce the price of fuel, freight, and transportation between communities.
  - *Connectivity:* Roads or bridges that connect the communities in the Y-K Delta are needed, specifically a road between Oscarville, Napakiak, and Bethel. Members of the public support the Y-K Freight Corridor project.
  - *Dust Control:* Residents would like Bethel to have paved streets. Several members complained about dust impacting their daily lives.
  - *Winter Trail Markings:* Winter trail markings need to be prioritized for funding. These markings help keep residents safe when traveling between communities.
  - *Marine:* Improvements to the Bethel port and harbor should be prioritized.
  - *Passenger Shelters:* Passenger shelters are needed at airports in communities that are not connected by road.

- *Donlin Gold, LLC (Donlin)*: Concerns were raised about the upcoming operations of the Donlin mine. When operations start, there will be up to three barges a day going between Bethel and the Donlin camp.
  - *Transit*: Expand transit and help provide the public with better public transportation options.
  - *Sub-Regional Connections*: Connections between communities with sub-regional infrastructure was suggested.
  - *Regulatory Exemptions*: Regulatory exemptions for air carriers seeking to use safer aircraft were suggested.
- **BIA Tribal Providers Conference, December 2015**
    - *AVCP Y-K Freight Corridor Project*: Additional public involvement for the Y-K Freight Corridor project was requested.
    - *Fuel Prices*: Y-K Delta residents are still paying as much as \$6 to \$7 a gallon for fuel.
    - *Donlin*: Concerns regarding the Donlin mine's proposed infrastructure.

### 3.2.6 Public Open House

An online public open house was held on February 16, 2017 to present the draft plan. The open house was held in Anchorage using teleconference and Facebook Live facilities. Final comments on the draft Plan were received and have been incorporated into the Plan.



AVCP Conference, September 2015

## 4.0 EXISTING CONDITIONS, ISSUES, AND NEEDS

The Y-K Delta is one of the largest deltas in the world, stretching across 59,000 square miles (Figure 5). 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 AVCP and the Yukon-Kuskokwim Health Corporation (YKHC).

The Y-K Delta is located in a remote geographical location, 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.

Transportation within the region is highly seasonal. Given the lack of inter-village roads and wet, lowland conditions in much of the region, overland travel is not easy. In the summer months, river transportation is by skiff or small

**Because the 56 communities 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.**



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.

**Figure 5. YKTP Study Area Map**



## 4.1 Economy

The Y-K Delta is located in the Kusilvak and Bethel census areas, which are among the least economically well-off areas in the United States. Many communities do not have clean water, sewer systems, health care, jobs, affordable housing, and reliable transportation. Sewer sanitation is often provided through the use of “honey bucket” toilets. Because fuel and freight is transported to the communities by barge or airplane, the cost of resources is several orders of magnitude higher than costs in more urban areas such as Anchorage. As a consequence, residents consistently struggle to pay for their heating bills and food. For example, the cost for a round trip plane ticket between two distant villages within the region is around \$400, and the cost to fly round trip between a village and Anchorage is around \$500.

**The cost of a flight between a Y-K Delta village and Anchorage is about the same as a plane ticket between Anchorage and Hawaii.**

The major economic activities in the region include commercial fishing and fish processing, health care, local government, and industries that support the supply of goods and services to the region. Although there is currently limited activity in the mining industry, potential mining operations, particularly at the Donlin mine, could add to the economy of the region in the future. Subsistence harvest activities are prevalent throughout the region, and while not always evident through normal economic indicators, contribute greatly to the economy of the region and the well-being of its residents. Support industries are driven by changes in population and income, and if the population in the region declined, support sectors would suffer losses.

High fuel costs affect costs of transportation, electricity, and heating in the Y-K Delta. The cost of fuel, goods, and services, such as transportation, may fall over time but the volatility of fuel prices, and the many factors impacting them, make real predictions about fuel price changes in this region difficult. The immediate impact of lower oil prices on state government will be less state aid to Alaska communities. Outmigration of residents in the region is expected to continue and increase over time. However, the high birth rate in the region will fuel a slow increase in population.

### 4.1.1 Employment and Income

Table 1 presents annual per capita income for the two census areas in the region. The strong employment in Bethel compared to other communities in the region is reflected in these figures. Both of these census areas had average annual per capita income growth higher than the Consumer Price Index growth calculated for Anchorage (annual average of 2.3 percent growth between 2008 and 2013), so real growth of income in the region occurred during this time period. For the state as a whole, per capita income grew slower than the cost of living over this same time period.

#### 4.1.2 Population

The population in the Y-K Delta is approximately 26,000 residents. Table 2 presents the current forecast of population growth in the study area, with populations for Bethel and the secondary hubs of Aniak, Emmonak, McGrath, and St. Mary's. The forecast was prepared by the state demographer (Alaska Department of Labor and Workforce Development) in 2012. It forecasts continued high birth rates and continued outmigration in the region through 2042. It shows annual population growth rates increasing slightly in the region over time, while statewide annual population growth rates are expected to

decrease slightly over the same time period. This difference would result in the Y-K Delta region having a higher percentage of the statewide population in future years. Table 2 also compares the population forecasts developed for the 2002 YKTP. The Department of Labor and Workforce Development's population forecasts for the Y-K Delta in 2020 are far below population levels forecasted in the 2002 YKTP.

Bethel is one of the fastest growing communities in Alaska. The rate of population growth in Bethel is similar to other small cities in Alaska such as Palmer, Kenai, and Wasilla.

**Table 1. Annual Per Capita Income for the Bethel and Kusilvak Census Areas, 2008 to 2013.**

Year	Bethel Census Area	Kusilvak Census Area	Alaska
2008	\$31,022	\$21,932	\$45,024
2009	\$32,546	\$22,690	\$44,184
2010	\$34,113	\$24,177	\$45,565
2011	\$36,424	\$25,891	\$48,181
2012	\$36,941	\$26,117	\$49,906
2013	\$36,195	\$25,066	\$50,150
Average Annual Change	3.2%	2.8%	2.2%
Average Annual Change Adjusted for Inflation	0.9%	0.5%	-0.1%

**Table 2. Forecast of Population for the Bethel, Kusilvak, and Yukon Koyukuk (8 communities) Census Areas, 2012 through 2042.**

	Bethel City	Secondary Air Hubs	Other Villages	Total Region
2000 Census	5,532	2,365	16,320	24,217
2013 Population Estimate (DOLWD)	6,278	2,317	18,222	26,817
2017 Population Forecast (DOLWD)	6,562	2,414	19,259	28,235
2022 Population Forecast (DOLWD)	6,860	2,523	20,160	29,543
2027 Population Forecast (DOLWD)	7,163	2,632	21,073	30,869
2032 Population Forecast (DOLWD)	7,495	2,775	22,139	32,409
2037 Population Forecast (DOLWD)	7,905	2,930	23,396	34,231
2042 Population Forecast (DOLWD)	8,432	3,148	25,078	36,658
2020 Population Forecast (DOLWD)	6,739	2,478	19,794	29,011
High 2020 Forecast (2002 YKTP)	8,218	4,499	27,649	40,366
Low 2020 Forecast (2002 YKTP)	7,460	4,005	24,505	35,970

Sources: State Demographer's Office, Alaska Department of Labor and Workforce Development (DOLWD), 2014, and Yukon Kuskokwim Delta Transportation Plan, DOT&PF, 2002.

## 4.2 Yukon-Kuskokwim Health Corporation (YKHC)

One of the main economic drivers in Bethel is YKHC, a tribal health organization headquartered in Bethel. YKHC administers a comprehensive health care delivery system for all Y-K Delta communities. The system includes community clinics, sub-regional clinics (SRC), a regional hospital in Bethel, dental services, mental health services, substance abuse counseling and treatment, health promotion and disease prevention programs, and environmental health services.

In 2016, YKHC secured the funds needed to expand its facilities to improve health care throughout the Y-K Delta. At \$165 million, the loan commitment to YKHC is the largest ever granted by the United States Department of Agriculture (USDA) Community Facilities Program. The program funds facilities that serve an essential community purpose. YKHC's hospital was built in the 1980s, and YKHC is planning to renovate the building and construct a new primary care facility.

The facility expansion will cost ~\$300 million and is currently being constructed. The expansion includes a new clinic and renovation of the YKHC hospital. Bethel residents and businesses have expressed the need for additional housing, improved traffic patterns, and road improvements to support the hospital expansion. Coordination among transportation stakeholders to support the additional housing, traffic, and transportation needs is critical.

In 2017, YKHC completed a Traffic Impact Assessment (TIA) for the hospital expansion and clinic project. The TIA provided information regarding average daily traffic in the area, which is approaching levels above 10,000 vehicles per day. DOT&PF and YKHC are currently working toward an interim solution along the hospital frontage to help with safety and congestion concerns.

It is important to note in the Plan that, under 17 AAC 10.020, YKHC is responsible for assisting DOT&PF and Bethel in selecting a transportation alternative to help address transportation impacts from this expansion because the project impacts a public right-of-way (ROW) owned by the State of Alaska. YKHC is also responsible for helping DOT&PF and the City of Bethel secure funds and schedule work. A three-way partnership and associated Memoranda of Understanding (MOU) are needed to support this project.

With the anticipated growth in Bethel, the YKHC hospital expansion project, the City of Bethel, and other transportation stakeholders agree that alternative routes could help distribute traffic volumes, provide safer access and connectivity within the community, and minimize residential conflict. Currently, the only way to access the residential area located near Ptarmigan Street is by traveling on the Chief Eddie Hoffman Highway and Ridgecrest Drive, which is currently experiencing traffic volumes greater than 10,000 vehicles per day.

**YKHC plans to add approximately 600 new employees to their organization with the expansion of the hospital facility and services.**

### 4.3 Donlin Gold LLC

Another potential project that will impact the transportation network in the Y-K Delta, especially in Bethel, is the Donlin mine project. Donlin is working to develop an open pit, hard rock gold mine about 10 miles north of the community of Crooked Creek (Figure 6). In addition to the mine site, the project has two other major components: transportation infrastructure and a pipeline. An Environmental Impact Statement (EIS) for the project was published for comment in November 2015. The review and comment period concluded in April 2016. A final EIS and Record of Decision are expected in 2018.

The mine would have a total footprint of about 16,300 acres. There is currently no road or rail access to the site, or an existing power supply. The mine would consist of an excavated open pit, ultimately about 2.2 miles long, 1-mile wide, and 1,850-foot deep; a waste treatment facility (tailings impoundment); a waste rock storage facility; a mill; and a natural gas-fired power plant with a total connected load of 227 megawatts. Transportation infrastructure would consist of upgraded dock facilities in Bethel, a

**Figure 6. Donlin Mine Location.**



30-mile road from the mine site to a new barge landing on the Kuskokwim River near Crooked Creek, and a 5,000-foot airstrip.

Donlin's planned marine cargo terminal at Bethel would have three berths: one to accommodate ocean barges and two for river barges. The storage yard would include adequate space to accommodate five ocean barge loads (storage for 2,750 containers). A fuel terminal capable of storing 10 million gallons would be constructed nearby. The terminal would have an average annual throughput of 40 million gallons. Fuel for the mine would be transported from Dutch Harbor by ocean barges that would deliver to Bethel. A 2.8-million-gallon tank would be built at Jungjuk, a new port facility on the Kuskokwim River, located approximately 185 river miles upstream from Bethel and eight river miles downstream from Crooked Creek. The transport of fuel between Bethel and Jungjuk would be accomplished by "tows," each consisting of a pusher tug and four barges. Each tow would make approximately 32 round trips per shipping season, for a total of 64 round trips between Bethel and Jungjuk. On a typical day, three barge trains would pass a given

point on the river; one barge train would move in one direction (up- or downstream); and the other two would move in the opposite direction (down- or upstream).

A 30-mile access road is planned to connect the Jungjuk port to the mine site. Fuel and other cargo would be transported by truck on the access road. Fuel transport would require approximately 27 tandem tanker truck trips per day, while transport of general cargo would

require approximately eight trips per day. Donlin describes the access road as a single-user private road. It would not pass through or near any existing settlements or communities. A 3-mile spur road at mile 5.4 from the mine site would provide access to the air strip. The road design provides for a 28' to 30' wide surface, with a design speed ranging from 15 miles per hour (mph) for mountainous terrain to 35 to 45 mph for moderate terrain. The clearing width ranges from 425' to 850'. Trails used by snow machines and dogsleds are in the vicinity of Donlin's exploration activities, which are generally not passable by wheeled vehicles.

Donlin operates a 4,913-foot gravel surfaced runway (FAA location identifier 01AA) built in the late 1990s at the mine site. The runway is closed to the public except in emergencies, has no lighting or approach aids, and is not maintained in the winter.

A proposed 315-mile, small-diameter (14-inch) natural gas pipeline would be constructed from the west side of Cook Inlet, across the Alaska Range, to the proposed power plant at the mine site.

If the EIS is approved, Donlin will move forward with developing the infrastructure mentioned above in preparation for mine operations. Stakeholders impacted by these operations should continue to coordinate with Donlin on project development.

## 4.4 Aviation

Aviation provides frequent, fast, and efficient access to all communities in the Y-K Delta. Residents fly for many basic purposes that contiguous U.S. residents would expect to drive automobiles, such as:

- Visiting friends and family, or traveling to school, vacations, or for medical reasons
- Federal, state, and local personnel traveling on official business
- Persons traveling on business or to access work sites, mines, canneries, or fishing vessels

- Military personnel traveling for National Guard duty or to visit military bases and facilities

The Y-K Delta is primarily an importer of goods, groceries, and household items. Primary exports are fish and game products, business and residential equipment needing servicing in Anchorage, and industry goods.

The Y-K Delta aviation system is comprised of 52 airports supported by hub airports in five communities. Services such as aircraft maintenance and fuel are found primarily at the hub airports, which function as centers of aviation commerce. Aviation activity at these hubs focuses on the transport of passengers and cargo, with USPS Bypass Mail transport to villages being a major driver of aviation demand. Communities in the Y-K Delta whose airport is currently designated by the USPS as a Bypass Mail hub include:

- Aniak
- Bethel
- Emmonak
- McGrath
- St. Mary's

USPS has also proposed Chevak as a Bypass Mail hub, but it is not functioning as one because no qualified carriers have applied to serve Chevak as a hub.

Other airports are "spoke" airports, as they provide aviation access via the hubs to communities in the region. Spoke airports within the Y-K Delta have very few based aircraft and aircraft services (Figure 7).

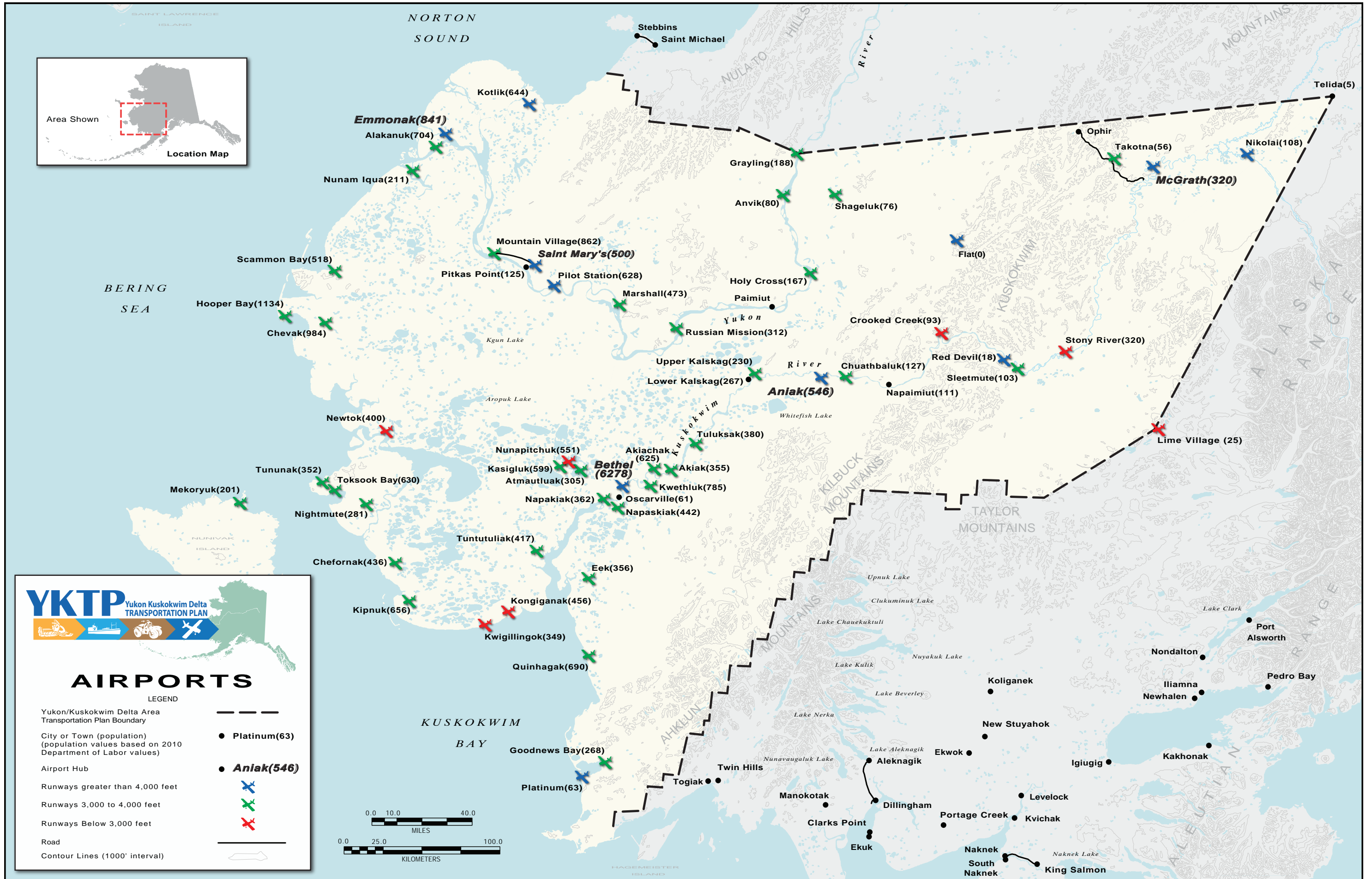
While most of the aviation demand in the region is driven by air carriers, general aviation traffic and chartered aircraft activity also create important aviation demand.

An inventory of existing conditions for all Y-K Delta airports is found in (Figure 8).



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Figure 7. 2018 Existing Aviation Conditions Map.



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Figure 8. Y-K Delta Airport Inventory.

Community	Region	Classification	2015 Pop.	RWY Length/Width (feet)	RWY Surface	ALP Near Term/Ulimate RWY Length/Width (feet)	ALP Date	ALP ARC Existing	ARC Near Term/Ulimate	2014 Wx Station	2014 Wx Camera	2014 Approach Types Available	Runway Lighting	2014 Passenger Shelter	2014 Sub-regional Health Facility	2014 School	2014 Post Office
<b>Bethel (Hub)</b>																	
Bethel(Major Hub)	Central	Regional	6,241	6400 X 150	Paved	Same As Existing	2010	C-III	C-III	ASOS	Yes	ILS/GPS/ VOR/DME	HIRL	Common use terminal w/ amenities individual carrier terminals	Yes	Yes	Yes
<b>Villages Near Bethel -Hub (Bethel)</b>																	
Akiachak	Central	Community Off-Road	671	3300 X 60	Gravel	3300x60/5000x75	2013	B-I	B-II		No	GPS/NDB	MIRL	None	No	Yes	Yes
Akiak	Central	Community Off-Road	389	3196 X 75	Gravel	None	2002	B-I	B-I		No	GPS	MIRL	None	No	Yes	Yes
Atmautluak	Central	Community Off-Road	319	3000 X 75	Gravel	Same As Existing	2006	B-I	B-I		No	None	MIRL	None	No	Yes	No
Kasigluk	Central	Community Off-Road	600	3000 X 60	Gravel	Same As Existing	2011	A-I	A-I		Yes	GPS	MIRL	None	No	Yes	No
Kwethluk	Central	Community Off-Road	800	3199 X 75	Gravel	Same As Existing	2005	B-II	B-II		Yes	GPS	MIRL	None	No	Yes	No
Napakiak	Central	Community Off-Road	387	3248 X 60	Gravel	Same As Existing	2002	B-I	B-I		Yes	None	MIRL	None	No	Yes	Yes
Napaskiak	Central	Community Off-Road	451	3000 X 60	Gravel	Same As Existing	2011	A-I	A-I		No	GPS	MIRL	None	No	Yes	No
Nunapitchuk	Central	Community Off-Road	563	2420 X 75	Gravel	Same As Existing	2014	A-I	None		Yes	GPS/NDB	MIRL	None	No	Yes	No
Oscarville	No Airport	No Airport	53		No Airport		No Airport				No	No Airport		No Airport	No	Yes	No
Tuluksak	Central	Community Off-Road	380	3300 X 60	Gravel	Same As Existing	2014	B-I	None		Yes	NONE	MIRL	None	No	Yes	No
Paimuit	No Airport	No Airport	0	No Airport			No Airport				No	No Airport		No Airport			No
Napaimute	No Airport	No Airport	2	No Airport			No Airport				No	No Airport		No Airport			No
<b>Aniak Plus Nearby Villages on Kuskokwim-Hub (Aniak)</b>																	
Aniak	Central	Regional	533	6000 X 150	Paved	6200x100	2016	B-III	B-III	AWOS	Yes	ILS/GPS/ NDB	HIRL	Individual Carrier Terminal	Yes	Yes	Yes
Chuathbaluk	Central	Community Off-Road	134	3401 X 60	Gravel	Same As Existing	2007	B-I Utility	None		No	GPS	MIRL	None	No	Yes	No
Crooked Creek	Central	Community Off-Road	105	2029 X 60	Gravel -Dirt	3300x75/3800x75	2010	A-I	B-II		No	NONE	No	None	No	Yes	Yes
Kalskag	Central	Community Off-Road	512 (upper and lower)	3198 X 75	Gravel	4000x75	2002	B-I	B-II	AWOS	Yes	GPS	MIRL	None	No		No
Red Devil	Central	Community Off-Road	19	4820 X 75	Gravel	4500x75	2004	B-II	B-II		Yes	NONE	No	None	No	Yes	No
Sleetmute	Central	Community Off-Road	99	3100 X 60	Gravel	3300x60	2003	B-I	B-I	AWOS	Yes	GPS	MIRL	None	No	Yes	No
Stony River	Central	Community Off-Road	34	2601 X 40	Gravel-Dirt	3200x60	2005	A-I	B-I		No	GPS/NDB	No	None	No	Yes	No
<b>McGrath Plus Nearby Villages-Hub (McGrath)</b>																	
McGrath	Central	Regional	315	5936 X 100	Paved	Same As Existing	2012	B-III	B-III	ASOS	Yes	GPS,VOR/DME	MIRL	Individual Carrier Terminal	Yes	Yes	Yes
Takotna	Central	Community Off-Road	62	3300 X 60	Gravel	4000x75	2013	B-I Utility	B-II		Yes	NONE	MIRL	None	No	Yes	No
Nikolai	Central	Community Off-Road	83	4021 X 75	Gravel	None	2007	B-III	None	AWSS	Yes	GPS	MIRL	None	No	Yes	No
Flat	Central	Local NPIAS Low	0	4045 X 90	Turf-Gravel	Same As Existing	2011	A-I	A-I			NONE	No	None	No		No
Lime Village	Central	Local NPIAS Low	29	1500 X 55	Gravel-Dirt	None	2010	A-I	None		Yes	NONE	No	None	No	Yes	No
<b>Lower-Mid Yukon Served By Aniak-Hub (Aniak)</b>																	
Anvik	Northern	Community Off-Road	79	4000 X 75	Gravel	Same As Existing	2013	B-II	B-II	AWOS	Yes	GPS	MIRL	None	No	Yes	Yes

Figure 8. Y-K Delta Airport Inventory (Cont'd).

Community	Region	Classification	2015 Pop.	2017 RWY Length/Width (feet)	RWY Surface	ALP Near Term/Ulimate RWY Length/Width (feet)	ALP Date	ALP ARC Existing	ARC Near Term/Ultimate	2014 Wx Station	2014 Wx Camera	2014 Approach Types Available	Runway Lighting	2014 Passenger Shelter	2014 Sub-regional Health Facility	2014 School	2014 Post Office
Grayling	Northern	Community Off-Road	191	4000 X 75	Gravel	Same As Existing	2015	A-I	B-II		Yes	NONE	MIRL	None	No	Yes	No
Holy Cross	Northern	Community Off-Road	177	4000 X 100	Gravel	Same As Existing	2001	B-II	B-II	AWSS	Yes	GPS	MIRL	None	No	Yes	No
Russian Mission	Northern	Community Off-Road	325	3620 X 100	Gravel	Same As Existing	2004	B-II	B-II	AWSS		GPS	MIRL	None	No	Yes	No
Shageluk	Northern	Community Off-Road	79	3400 X 75	Gravel	Same As Existing	2004	B-II	B-II	AWSS	Yes	GPS	MIRL	None	No	Yes	No
<b>Lower Yukon Served by St. Mary's-Hub (St. Mary's or Bethel)</b>																	
St. Mary's incl Pitka's Point	Northern	Regional	550(117)	6008 X 150	Gravel	Same As Existing	2002	C-III	C-III	AWOS	Yes	GPS/LOC/DME	HIRL	Individual Carrier Terminal	Yes	Yes	No
Marshall	Northern	Community Off-Road	444	3200 X 100	Gravel	5000x100	2003	B-II	B-II	AWSS	Yes	GPS/NDB	MIRL	None	No	Yes	No
Mountain Village	Northern	Community Off-Road	857	3501 X 75	Gravel	4000x75	2004	A-I	B-II	AWOS	Yes	GPS	MIRL	None		Yes	Yes
Pilot Station	Northern	Community Off-Road	634	4000 X 75	Gravel	4400x75	2003	B-II	B-II			NONE	MIRL	None	No	Yes	No
<b>Upper Coastal-Hub (Emmonak)</b>																	
Emmonak	Northern	Regional	841	4601 X 100	Gravel	6200x150	2003	B-II	C-III	AWOS	Yes	GPS/NDB	MIRL	None	No	Yes	No
Alakanuk	Northern	Community Off-Road	730	4000 X 75	Gravel	Same As Existing	2014	B-II	B-II			GPS	MIRL	None	No	Yes	No
Nunam Iqua (Sheldon Point)	Northern	Community Off-Road	181	3015 X 60	Gravel	3400x75	2002	B-I	B-II			GPS	MIRL	None		Yes	No
Kotlik	Northern	Community Off-Road	653	4400 X 100	Gravel	Same As Existing	2013	B-II	B-II		Yes	GPS/VOR	MIRL	None	No		No
<b>Middle Coastal-Hub (Bethel)</b>																	
Hooper Bay	Central	Community Off-Road	1178	3300 X 75	Gravel Surface	4500x75	2013	B-II	B-II	AWOS	Yes	ILS/GPS	MIRL	None	Yes	Yes	No
Chevak	Central	Community Off-Road	989	3200 X 75	Gravel	Same As Existing	2015	B-I	B-I	AWOS	Yes	GPS	MIRL	None	No	Yes	No
Scammon Bay	Central	Community Off-Road	528	3000 X 75	Gravel	4000x100	2004	A-II	B-II	AWSS	Yes	GPS	MIRL	None	No	Yes	No
<b>Lower-Middle Coastal-Hub (Bethel)</b>																	
Chefornak	Central	Community Off-Road	420	3230 X 60	Gravel	3230x75	2016	B-I	B-II		Yes	GPS	MIRL	None	No		Yes
Kipnuk	Central	Community Off-Road	643	3200 X 60	Gravel	4000x75	2016	B-I	B-II	AWSS	Yes	GPS	MIRL	None	No		No
Mekoryuk	Central	Community Off-Road	210	3001 X 75	Gravel	4070x100	1983	B-II		AWOS	Yes	ILS/GPS/VOR	MIRL	None	No	Yes	Yes
Newtok	Central	Community Off-Road	380	2202 X 35	Gravel	3300x75/4000x75	2014	A-I	NEW AIRPORT SITE		Yes	GPS	No	None	No	Yes	No
Nightmute	Central	Community Off-Road	274	3200 X 75	Gravel	Same As Existing	2014	B-II	B-II		No	NONE	MIRL	None	No	Yes	No
Toksook Bay	Central	Community Off-Road	623	3218 X 60	Gravel	None	2005	B-I	None	AWSS	Yes	GPS	MIRL	None		Yes	No
Tununak	Central	Community Off-Road	384	3300 X 75	Gravel	4000x75	2017	B-II	B-II		No	None	MIRL	None	No	Yes	No

Figure 8. Y-K Delta Airport Inventory (Cont'd).

Kuskokwim Bay & South Coastal-Hub (Bethel)																	
Community	Region	Classification	2015 Pop.	2014 RWY Length/Width (feet)	RWY Surface	ALP Near Term/Ultimate RWY Length/Width (feet)	ALP Date	ALP ARC Existing	ARC Near Term/Ultimate	2014 Wx Station	2014 Wx Camera	2014 Approach Types Available	Runway Lighting	2014 Passenger Shelter	2014 Sub-regional Health Facility	2014 School	2014 Post Office
Eek	Central	Community Off-Road	349	3242 X 60	Gravel	Same As Existing	2007	B-I	B-I		Yes	GPS	MIRL	None	No	Yes	Yes
Kongiganak	Central	Community Off-Road	501	2400 X 75	Gravel-Dirt	3300x100	2007	A-I	B-II		No	NONE	MIRL	None	No	Yes	No
Kwigillingok	Central	Community Off-Road	364	1835 X 40	Gravel-Dirt	3300x60	2002	A-I	B-I		Yes	GPS	No	None	No	Yes	No
Quinhagak	Central	Community Off-Road	724	4000 X 75	Gravel	3116x59	2006	A-I	B-I		No	GPS	MIRL	Small Heated Shelter	No	Yes	No
Tuntutuliak	Central	Community Off-Road	437	3025 X 90	Gravel	3093x75	1998	A-I	B-I		Yes	NONE	MIRL	Unheated Shelter	No	Yes	No
Platinum	Central	Community Off-Road	60	5000 X 75	Gravel	Same As Existing	2014	B-II	B-II	AWOS	No	ILS/GPS/VOR	MIRL	None	No	Yes	No
Goodnews Bay	Central	Community Off-Road	259	3300 X 75	Gravel	3300x75/3800x75	2006	B-II Utility	B-II Utility		Yes	None	MIRL	None	No	Yes	Yes
Source	AASP	AASP	DCCED 2015 Dep of Labor Estimate	AASP	Ak Supplement	ALP	DOT Website	ALP	ALP	AASP	<a href="http://avcams.faa.gov/">http://avcams.faa.gov/</a>	AASP		AASP	AASP	AASP	AASP and Y-K Contact List

\* Runways for villages served primarily by 9 passenger Navajo

ARC	Airport Reference Code
A-I or B-I	Most single engine land fall into this category
B-II or B-III	Airports serving larger general aviation and commuter-type planes
C-III	Small to medium-sized airports serving air carriers
AWOS	Automated Weather Observation Station
AWSS	Automated Weather Sensor System
ASOS	Automated Surface Observation Station
ILS	Instrument Landing System
VOR	Very High Frequency Omnidirectional Range
DME	Distance Measuring Equipment
LOC	Localizer(part of ILS)
AIP	Airport Improvement Program
M&O	Maintenance and Operations

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#### 4.4.1 Top 20 Airports: Flights, Enplaned Passengers, and Deplaned Cargo

While there are 52 airports within the study area, Tables 3, 4, and 5 rank the 20 airports with the highest traffic in number of flights, enplaned passengers, and deplaned cargo (mail and freight) in the region. Bethel is the busiest airport in the Y-K Delta as it tops the list in the number of flights, enplaned passengers, and deplaned cargo. It is the third busiest airport in Alaska.

Four of the five hubs also rank highly in the same categories. McGrath, one of the five Bypass Mail hubs, however, only ranks highly for deplaned cargo. Some communities rank highly on one or more of these lists, and low on others. This is probably because of location, population of surrounding communities, types of aircraft used, and local industries. For example, although Chevak ranks highly (number 5 or 6) in enplaned passengers and deplaned cargo, it ranks number 15 in number of flights, which may be the result of larger capacity aircraft operating that require fewer trips to serve the market. Some rankings are less straightforward in modeling the local demand. Tuntutuliak, for example, ranks fairly high for number of flights, but low for enplaned passengers, and is not in the top 20 airports for deplaned cargo.

**Table 3. Top 20: Flights, 2015.**

Rank	Airport	2015 Flights	2015 Population	Flights per Capita
1	Bethel	39,118	6,246	6.3
2	Aniak	5,948	532	11.2
3	St. Mary's	5,225	567	9.2
4	Emmonak	4,858	827	5.9
5	Quinhagak	3,746	746	5.0
6	Toksook	3,609	622	5.8
7	Kipnuk	3,049	679	4.5
8	Tuntutuliak	2,996	437	6.9
9	Eek	2,926	348	8.4
10	Kotlik	2,840	644	4.4
11	Kongiganak	2,833	504	5.6
12	Chefornak	2,825	432	6.5
13	Hooper Bay	2,819	1,210	2.3
14	Alakanuk	2,755	707	3.9
15	Chevak	2,638	1,022	2.6
16	Mountain Village	2,633	901	2.9
17	Kasigluk	2,627	620	4.2
18	Kwigillingok	2,567	378	6.8
19	Kwethluk	2,549	794	3.2
20	Pilot Station	2,496	626	4.0
Total Top 20		101,057	18,842	5.4
All Other Airports		39,507	8,035	4.9
<b>Total Region</b>		<b>140,564</b>	<b>26,877</b>	<b>5.2</b>

Sources: Air traffic data obtained from the U.S. Department of Transportation, Transtats databases. Populations were estimated by DOLWD.

Note: The population of Bethel includes that of Oscarville, and the population of St. Mary's includes that of Pitkas Point because those smaller communities are included within the service areas of the larger communities' airports.



Table 4. Top 20: Enplaned Passengers, 2015.

Rank	Airport	2015 Passenger	2015 Population	Passenger/ Capita
1	Bethel	159,349	6,246	25.5
2	Aniak	15,621	532	29.4
3	St. Mary's	14,528	567	25.6
4	Quinhagak	9,886	746	13.3
5	Chevak	9,767	1,022	9.6
6	Emmonak	9,694	827	11.7
7	Hooper Bay	9,285	1,210	7.7
8	Toksook	8,974	622	14.4
9	Kipnuk	8,605	679	12.7
10	Scammon Bay	7,826	561	14.0
11	Chefornak	7,666	432	17.7
12	Kotlik	7,431	644	11.5
13	Mountain Village	7,406	901	8.2
14	Eek	6,661	348	19.1
15	Pilot Station	6,649	626	10.6
16	Kongiganak	6,520	504	12.9
17	Alakanuk	6,249	707	8.8
18	Tuntutuliak	6,102	437	14.0
19	Newtok	5,707	396	14.4
20	Nightmute	5,691	285	20.0
Total Top 20		319,617	18,292	17.5
All Other Airports		81,139	8,585	9.5
<b>Total Region</b>		<b>400,756</b>	<b>26,877</b>	<b>14.9</b>

Table 5. Top 20: Deplaned Cargo, 2015.

Rank	Airport	Deplaned Cargo (lbs)	2015 Population	Cargo/ Capita (lbs)
1	Bethel	42,649,322	6,246	6,828.3
2	Aniak	6,834,894	532	2,847.5
3	St. Mary's	5,662,554	567	9,986.9
4	Emmonak	5,252,432	827	6,351.2
5	Hooper Bay	2,488,920	1,210	2,057.0
6	Chevak	2,319,417	1,022	2,269.5
7	McGrath	1,813,383	327	5,545.5
8	Quinhagak	1,750,717	746	2,346.8
9	Toksook	1,542,171	622	2,479.4
10	Mountain Village	1,507,074	901	1,672.7
11	Kipnuk	1,381,715	679	2,034.9
12	Scammon Bay	1,380,304	561	2,460.4
13	Alakanuk	1,217,873	707	1,722.6
14	Kotlik	1,216,548	644	1,889.0
15	Pilot Station	1,164,428	626	1,860.1
16	Chefornak	1,089,023	432	2,520.9
17	Kalskag	1,087,507	284	3,829.3
18	Kongiganak	1,081,663	504	2,146.2
19	Tununak	979,783	395	2,480.5
20	Marshall	896,013	463	1,935.2
Total Top 20		83,315,741	18,295	4,554.0
All Other Airports		12,747,995	8,582	1,485.4
<b>Total Region</b>		<b>96,063,736</b>	<b>26,877</b>	<b>3,574.2</b>

Sources: Air traffic data obtained from the U.S. Department of Transportation, Transtats databases. Populations were estimated by DOLWD.

Note: The population of Bethel includes that of Oscarville, and the population of St. Mary's includes that of Pitkas Point because those smaller communities are included within the service areas of the larger communities' airports.

#### 4.4.2 Carriers/Fleet

Passenger airlines and cargo-only carriers operate in the Y-K Delta region with a wide variety of aircraft. Appendix B identifies the carriers, their aircraft, the aircraft's reference code, and primary airports served.



Source: Grant Aviation

#### 4.4.3 Essential Air Service

The Essential Air Service (EAS) subsidy program went into effect after the passing of the Airline Deregulation Act in 1978. The EAS program is administered by the U.S. Department of Transportation (USDOT) with the purpose of guaranteeing a minimum level of scheduled air service to rural communities that would otherwise have lost service through changes in air carrier profitability after deregulation. While this program is controversial and often debated in Congress, it has generally been supported for Alaska and Hawaii because air transportation is essential to many rural communities in these two states due to their isolation and lack of alternative systems of transportation. Y-K Delta communities currently do not receive EAS subsidies, however, all but four of those communities (Chauthbuluk, Kasigluk, Nightmute, and Nikolai) were deemed eligible for EAS subsidies in 1998 and could potentially receive those subsidies if scheduled commercial air service drops below a certain level. Figure 9 shows Alaska communities receiving subsidized air service under the EAS program.

#### 4.4.4 Bypass Mail Program

The USPS Bypass Mail program is the primary driver of aviation demand and the route structure of the Y-K Delta. Bypass Mail is shipped directly from merchants in Anchorage or Fairbanks to rural customers via air carriers, thereby bypassing the post office. The program reduces the cost of living in rural Alaska, reduces the need for and cost of additional USPS employees and facilities to handle mail shipments, and shortens shipping time because of reduced handling. However, it requires a significant subsidy by the USPS to cover the cost difference between U.S. parcel post rates and the air carriers' air freight rates.

Because shipment of mailed goods is "subsidized" by USPS, air carriers get additional revenue and are more able to provide service for passengers, as well as goods between rural communities and regional aviation hubs. Without the Bypass Mail program, some small communities with little demand for passenger service would receive far less of that service. Purchasers of goods shipped at the cheaper rates also benefit from this program.

Items shipped through the Bypass Mail program include bulk shipments of palletized goods, mostly food and dry goods destined for rural communities. Items not allowed to be shipped via Bypass Mail include hazardous substances and building materials.

To enter the Bypass Mail market, carriers must apply to USPS for equitable tender of Bypass Mail on a route. USPS then determines whether the carrier satisfies certain eligibility requirements. Carriers operating smaller planes whose payload capacity is less than 7,500 pounds are termed “bush carriers.” Carriers operating larger planes are called “mainline carriers” and they receive slightly lower rates since they operate primarily from Anchorage to the hub. Under USPS’s “equitable tender” practice, carriers of each type get an equal share of the relevant category of Bypass Mail (mainline or bush) on each route. Eligible carriers transporting Bypass Mail must publish their flight schedules and adhere to them, regardless of the volume of mail to be transported.

The USDOT determines the rates that the USPS pays to Alaska air carriers, based on the carriers’ reported operating expenses. Monthly, each air carrier submits its costs to USDOT. The data are used to set fair and compensatory rates to be paid by the USPS to each Bypass Mail carrier.

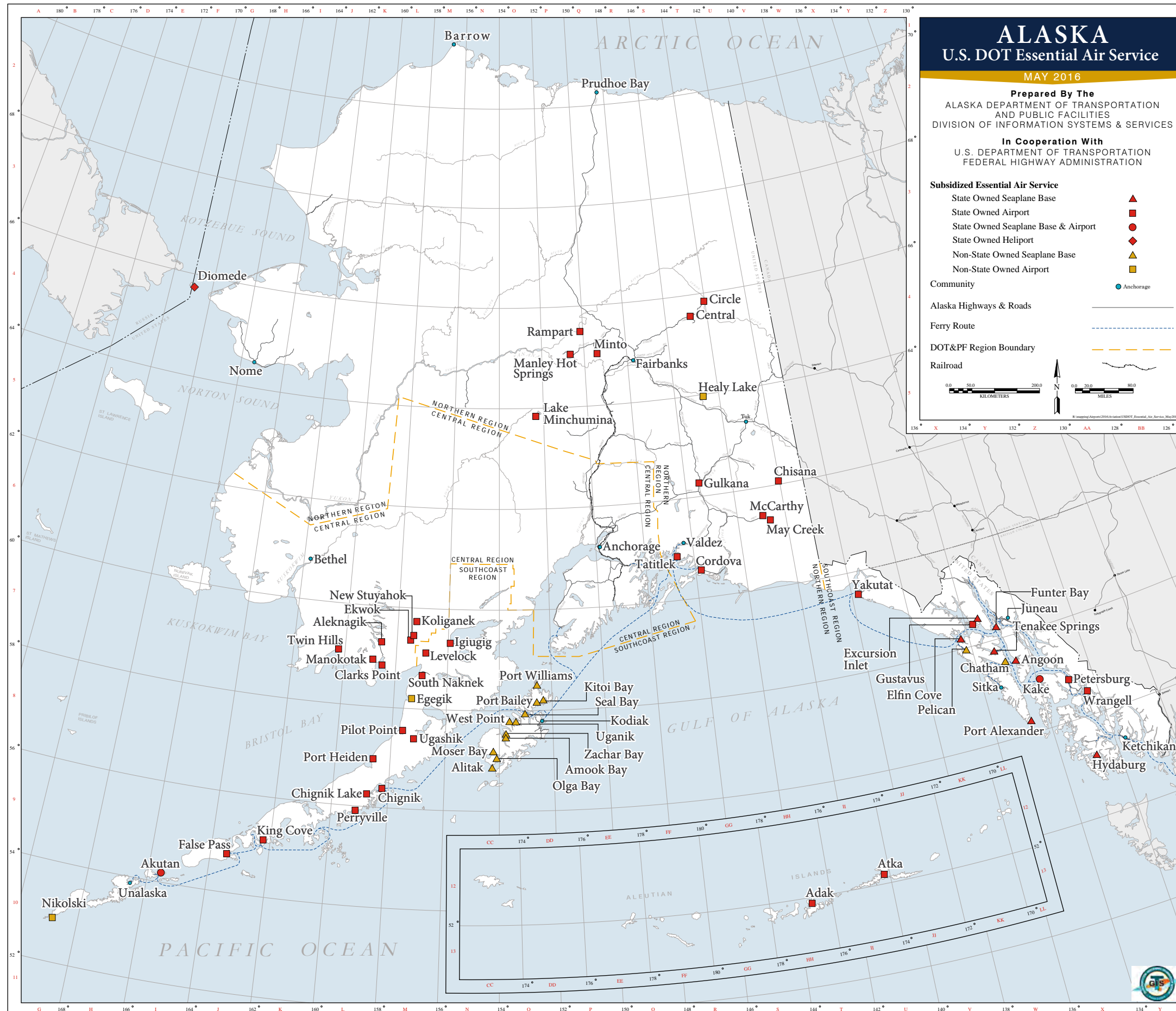
Of the 35 air carrier certificates that transported any type of mail between Alaska communities during 2010, over half (18 carrier certificates) transported mail between Alaska Bypass Mail-eligible locations. Because of carrier consolidation, USPS actually deals with a much smaller number of airlines.

USPS compensates mainline air carriers by paying the “intra-Alaska mainline service mail rate.” The mainline rate reflects the average cost of operations for the pool of mainline carriers. The two components of the mainline rate are the linehaul and terminal rates. The linehaul component reflects the aircraft-specific costs of pilot, fuel, maintenance, depreciation and lease, and is based on the revenue ton-miles of mail transported. The terminal component is based on the volume of mail loaded (enplaned) onto the aircraft, since the cost of loading mail onto an aircraft does not vary with distance. The USDOT sets the terminal and linehaul rates annually, but adjusts them quarterly to reflect changes in fuel prices (USDOT 2010b).

Bypass Mail can make up as much as 60 percent of some carriers’ annual revenue while passenger airfare and regular mail and freight comprise the remainder. Major carriers include Alaska Airlines, Northern Air Cargo, and Everts, which carry mail, food items, and other cargo to the hubs. From there, smaller airline companies such as Grant Aviation or Ravn Alaska take Bypass Mail and freight to more remote villages. Fare paying passengers are also transported on the same flights carrying Bypass Mail, making the flights more economical for the carrier. The only time this does not occur is on the cargo-only freighter aircraft flying from Anchorage to the hub.

Within the Y-K Delta, Bypass Mail originates from five hubs: Bethel (27 destination airports), Aniak (11 destination airports), Emmonak (three destination airports), McGrath (three destination airports), and St. Mary’s (three destination airports), as shown in Table 6 and Figure 10.

Figure 9. U.S. Department of Transportation Essential Air Service Map.



## ALASKA

### U.S. DOT Essential Air Service

MAY 2016

Prepared By The  
ALASKA DEPARTMENT OF TRANSPORTATION  
AND PUBLIC FACILITIES  
DIVISION OF INFORMATION SYSTEMS & SERVICES

In Cooperation With  
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

**Subsidized Essential Air Service**

- State Owned Seaplane Base ▲
- State Owned Airport ■
- State Owned Seaplane Base & Airport ●
- State Owned Heliport ◆
- Non-State Owned Seaplane Base ▲
- Non-State Owned Airport ■

Community ● Anchorage

Alaska Highways & Roads —

Ferry Route - - -

DOT&PF Region Boundary - - -

Railroad —

0.0 50.0 100.0 200.0  
KILOMETERS

0.0 30.0 60.0  
MILES

## The Essential Air Service Program in Alaska

The Airline Deregulation Act, passed in 1978, gave airlines almost total freedom to determine which markets to serve domestically and what fares to charge for that service. The Essential Air Service (EAS) program was put into place to guarantee that small communities that were served by certificated air carriers before deregulation maintain a minimal level of scheduled air service. The USDOT (United States Department of Transportation) administers the EAS program to ensure that smaller communities retain a link to the national air transportation system with a federal subsidy where necessary.

There are currently 62 communities in the State of Alaska that receive subsidized air service under the EAS program.

Alaskan communities receiving EAS subsidies set benchmarks for need and cost effectiveness in the program.

Alaska communities receiving EAS are the **most remote and isolated** in the nation.

There are 62 Alaska communities that receive EAS. Of those communities **only 6 are connected** to the national transportation system by a road.

Of those 6, only McCarthy **does not have road maintenance** in the winter months.

Of the remaining 5, only 1 is on a paved road (Gulkana) and that one is **over 210 miles** from the nearest med hub airport.

The remaining 56 communities are **completely isolated** from the road system and rely on air travel as their primary means of transportation.

▶ Alaska communities receiving EAS subsidy far exceed the recommendations to qualify as remote communities.

The average community subsidy in Alaska is **\$331,024**

The average community subsidy in the rest of the U.S. is **\$2,254,687**

▶ Air travel in Alaska is not a convenience; it is a critical transportation mode that provides basic day-to-day necessities and access to health facilities.

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**Table 6. Current Bypass Mail Hub and Destination Airports in the Y-K Delta (hubs in blue)<sup>3</sup>**

<b>BETHEL*</b>	<b>BET*</b>	<b>ANIAK*</b>	<b>ANI*</b>
Akiachak*	KKI	Anvik*	ANV
Akiak*	AKI	Chauthbuluk	CHU
Atmautluk*	ATT	Crooked Creek*	CKD
Chefornak*	CYF	Grayling*	KGX
Chevak*	VAK	Holy Cross*	HCR
Eek*	EEK	Kalskag (includes Upper and Lower)*	KLG
Goodnews Bay*	GNU	Red Devil*	RDV
Hooper Bay*	HPB	Russian Mission*	RSH
Kasigluk	KUK	Shageluk*	SHX
Kipnuk*	KPN	Sleetmute*	SLQ
Kongiganak*	KKH	Stony River*	SRV
Kwethluk*	KWT	<b>EMMONAK*</b>	<b>EMK</b>
Kwigillingok*	KWK	Alakanuk*	AUK
Marshall/Fortuna Ledge*	MLL	Kotlik*	KOT
Mekoryuk*	MYU	Sheldon Point/Nunam Iqua*	SXP
Napakiak*	WNA	<b>McGRATH*</b>	<b>MCG</b>
Napaskiak*	PKA	Nikolai	NIB
Newtok*	WWT	Takotna*	TCT
Nightmute	NME	Tatalina*	TLJ
Nunapitchuk*	NUP	<b>SAINT MARY'S*</b>	<b>KSM</b>
Platinum*	PTU	Mountain Village *	MOU
Quinhagak*	KWN	Pilot Station (includes Pitkas Point)*	PQS
Scammon Bay*	SCM	Marshall*	MLL
Toksook Bay*	OOK		
Tuluksak*	TLT		
Tuntutuliak*	WTL		
Tununak*	TNK		

\*These communities were deemed eligible in 1998 to receive Essential Air Service Subsidies under certain conditions. The remaining four (Chauthbuluk, Kasigluk, Nightmute, and Nikolai) may have had name changes or changes in the community size or character since 1998, and may also be eligible for EAS subsidies now. Note: Tatalina Airport is not included in this study.

Source: U.S. Postal Service, Handbook PO-508, Intra-Alaska Mail Service By Air.

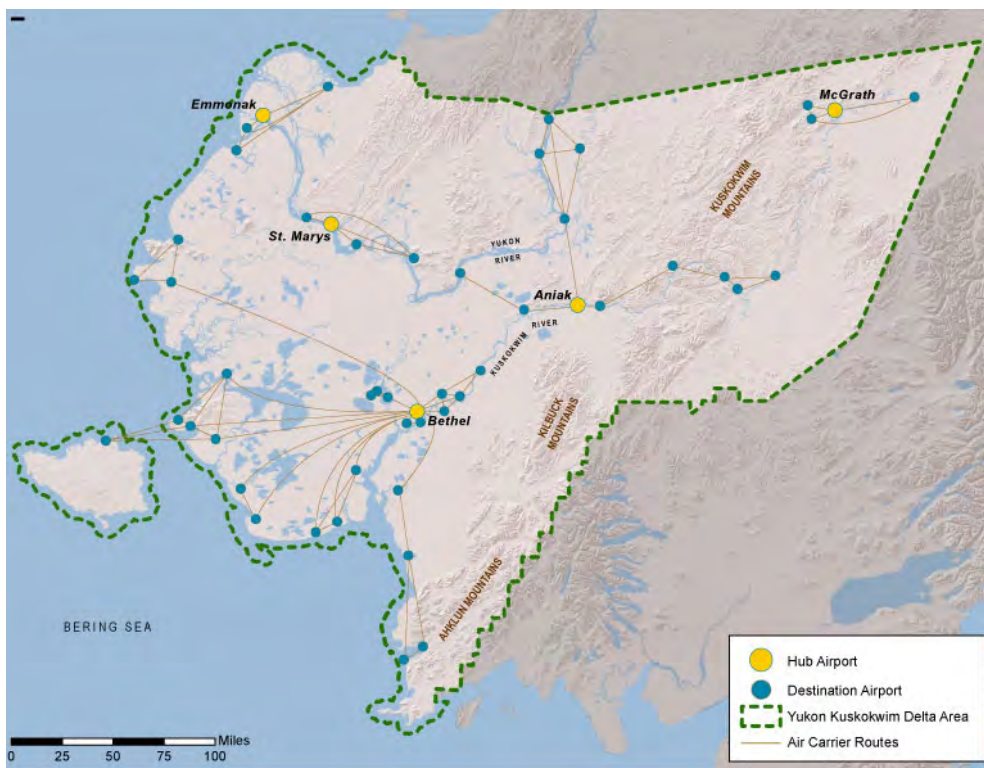
3 USPS hub codes do not necessarily match FAA or IATA airport codes.

Concerns about government efficiency and large budget deficits within USPS have made the high cost Bypass Mail program a controversial subject in Congress in recent years. In addition to possible legislative and funding changes, the USPS in Alaska has considered the addition of new Bypass Mail hubs to the system, with route changes to accommodate the new hubs. In 2012, the USPS chose Chevak as an additional Bypass Mail hub for the Y-K Delta. To date, no qualified air carriers have applied to the USPS to serve that new hub.

Should the Bypass Mail program be reduced or eliminated, most of the communities in the Y-K Delta now receiving the benefit of improved air service through the Bypass Mail program would be eligible for Essential Air Service subsidies through USDOT to preserve a minimum level of air service.

Additional information about the Bypass Mail program can be found in Appendix C.

**Figure 10. Bypass Mail Program Hub and Spoke Map.**



#### 4.4.5 Medical Transportation

Most medevacs are by air to Bethel and/or sub-regional clinics (SRC). Occasionally, boat transport has occurred from villages close to the Aniak SRC by emergency medical technicians. Otherwise, patients travel by boat in the summer and by snow machine in the winter to Bethel and the SRCs. Sometimes in the winter, Bethel cabs transport medical patients to and from nearby villages via ice roads (Akiak, Akiachak, Kwethluk, Napaskiak, Napakiak, and Oscarville).

LifeMed Alaska, LLC provides 24-hour critical care air ambulance services throughout Alaska for adult, pediatric, neonatal, and high-risk obstetric patients using a fleet of Learjets, turboprops, and helicopters. LifeMed Alaska is headquartered in Anchorage with base operations in Anchorage, Fairbanks, Soldotna, Bethel, and Palmer. Medevac flights from villages to the hub airports are typically accomplished by air carriers using small aircraft. Medevacs between the hub airports and Bethel, and occasionally to Anchorage, are conducted by LifeMed using the Learjet or King Air. Medevacs transfer directly from villages to Anchorage only when an assessment can be provided at the SRC villages (Hooper Bay, Aniak, Toksook Bay, Emmonak, and St. Mary's) by a mid-level or higher provider prior to acceptance by Anchorage facilities. The majority of patients medevaced from any of the 48 villages to Bethel do not require subsequent transfer to Anchorage. LifeMed has requested the crosswind runway at the Bethel Airport be extended and paved to serve its King Air aircraft.

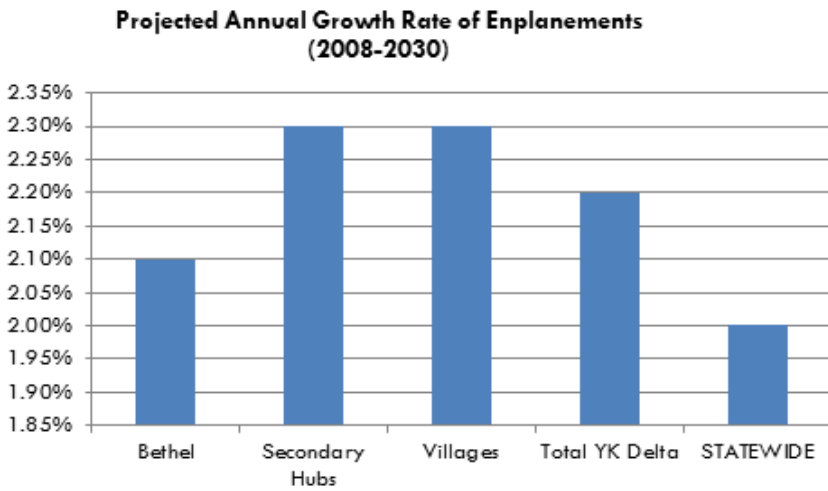
#### 4.4.6 Y-K Delta Aviation Forecast

A forecast of aviation demand for the Y-K Delta was extracted from the statewide forecast of aviation activity produced for the AASP by DOT&PF in 2011. Growth indicators examined included passenger enplanements, cargo tonnage, aircraft operations, and based aircraft. The AASP forecasts present a broader, more statewide and regional focus than in-depth forecasts for specific airports do, so they may be less accurate for individual airports. The forecasts show:

- Y-K Delta enplanement growth rates are greater than enplanement growth forecasts for the state as a whole (Figure 11).
- Y-K Delta region freight growth is higher than the statewide growth rate (when the extremely high freight numbers at Ted Stevens Anchorage International Airport are excluded from the statewide growth rate) (Figure 12).
- Y-K Delta operations growth is slightly lower than statewide operations growth (Figure 13).
- Y-K Delta based aircraft growth is similar to statewide based aircraft forecasts (Figure 14).

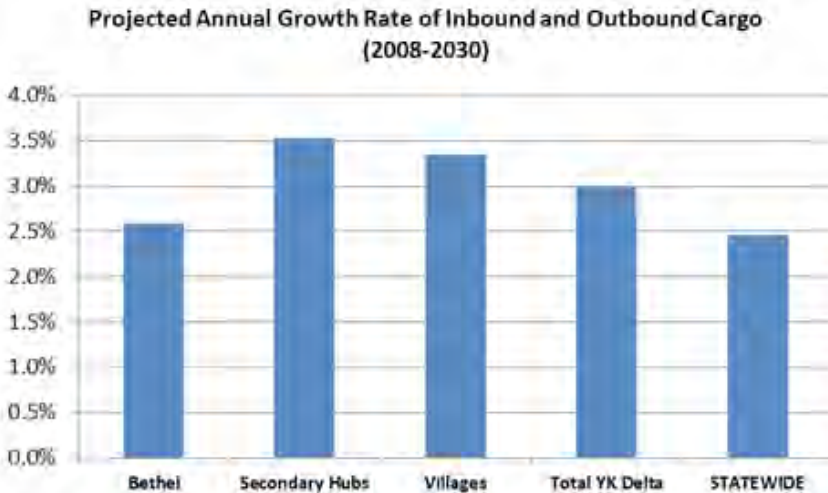


**Figure 11. Projected Annual Growth Rate of Enplanements.**



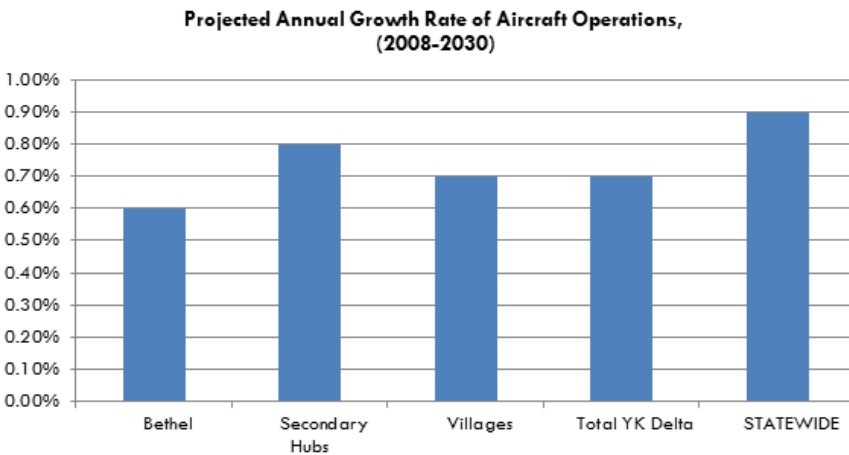
Source: AASP Forecast Report, prepared for DOT&PF by HNTB Corporation, 2011.

**Figure 12. Projected Annual Growth Rate of Inbound and Outbound Cargo.**



Source: Alaska Aviation System Plan Forecast Report, prepared for DOT&PF by HNTB Corporation, 2011.

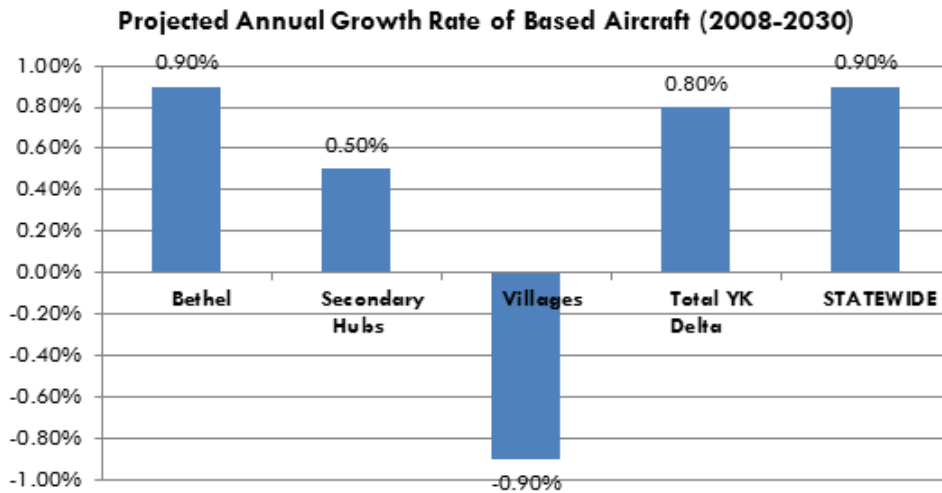
**Figure 13. Projected Annual Growth Rate of Aircraft Operations.**



Source: AASP Forecast Report, prepared for DOT&PF by HNTB Corporation, 2011.

More detailed enplanement, freight, operations, and based aircraft forecast information for the Y-K Delta can be found in Appendix D.

Figure 14. Projected Annual Growth Rate of Based Aircraft.



Source: AASP Forecast Report, prepared for DOT&PF by HNTB Corporation, 2011.

#### 4.4.7 Improving Existing Airport Facilities

Airports in the region are classified as Regional, Community, and Local by the AASP (Figure 15). An inventory of the existing 52 public airports in the region and their AASP classifications can be found in Figure 15 on the following page. The airports serving the villages are grouped with the hub airports that serve them.

As shown in Table 7 the airport system includes three paved Regional class airports and two gravel Regional class airports, 45 gravel Community Off-Road airports, and two gravel Local National Plan of Integrated Airport Systems (NPIAS) Low airports, as classified by the AASP.

Table 7. Y-K Airports Overview.

AASP Classification	Airports With Paved Runways	Airports With Gravel Runways	Total
Regional	3	2	5
Community Off-Road	0	45	45
Local NPIAS Low	0	2	2
Total	3	49	52

*Runway Length Progress Since the 2002 YKTP:* Substantial progress has been made toward accomplishing the AASP's goal of 3,300' as a minimum standard for runway length at non-hub airports. In 2002, 21 of 45 Community Off-Road airports were less than 3,000' long. In 2014, only eight of 45 Community Off-Road airports were still less than 3,000' long. Two of those (Kwigillingok, and Crooked Creek) are already programmed for relocation or reconstruction, and the Pilot Station relocation and extension is nearly completed. Tununak's recently relocated airport has a runway length of 3,300'. Site-specific design considerations such as elevation and temperature may not allow for a full 3,300' runway length and cost considerations may make adding additional runway impractical. Generally speaking, Community Class Airport runways exceeding 3,000' should be considered as meeting the 3,300' standard.

*Relocated Airports in the Y-K Delta Region 2002-2014:* Several airports identified in the 2002 YKTP were proposed to be relocated to a new site with adequate land to extend the runway and meet other FAA-required safety standards. Some airports such as Eek, Tuntuliak and Takotna had terrain or other site constraints that made it difficult to extend without relocating. Other reasons for relocations include encroachment by the community preventing airport improvements, and major maintenance/erosion or flooding at the current site. Table 8 shows which Y-K Delta Airports have been relocated since 2002.

*Aircraft Fleet Changes/Runway Length:* The 2002 YKTP anticipated that increasing passenger enplanements and freight volumes, together with the availability of certain aircraft types cycling out of the commuter market in the continental U.S., would encourage the use of larger, more demanding 19- to 30-seat aircraft, such as the Saab 340 and Beech 1900, at village airports.

Based on that forecast, the 2002 YKTP recommended increasing the standard runway length for Y-K Delta community airports to as much as 4,500'. However, this was based on an assumption that air carriers would purchase larger aircraft to accommodate an overly optimistic forecast of travel demand. The 2002 YKTP forecast, using an annual growth rate of 3.28 percent, predicted that 459,270 passengers would enplane in 2015. Actual 2015 historical data shows that enplanements are tracking almost 13 percent below this figure. The Plan update forecast, which was based on a 2011 AASP statewide aviation forecast (see Appendix D), anticipates that passenger enplanements will increase by 2.2 percent annually through 2030.

A recent survey of air carriers indicates that although the larger aircraft mentioned above are a part of the fleet serving the hub airports, the passenger fleet serving the smaller village airports is dominated by the 6-seat Cessna 207 (requires 1,800-foot runway) and the 11- to 13-seat Cessna 208 Caravan (requires a minimum of 2,500-foot runway). The fleet also includes several 30-seat DeHavilland Dash-8s (requires 3,280 to 4,675-foot runway).

**Table 8. Y-K Delta Relocated Airports – 2002- 2014.**

Project Complete Date	Relocated Airport
2005	Toksook Bay
2006	Chuathbaluk
2006	Eek
2009	Chevak
2009	Tuntuliak
2011	Goodnews
2012	Nightmute
2013	Akiachak
2013	Takotna
2013	Tuluksak
2014	Chefornak
2014	Kipnuk
2014	Platinum

**Air carriers interviewed for this Plan expressed confidence the aircraft fleet currently serving the villages is “right-sized,” will remain stable for the foreseeable future, and existing aircraft will eventually be replaced by newer, more efficient aircraft with similar capacity and performance characteristics. For example, multiple carriers intend to replace their older Cessna 207s with the 6-passenger GA8 Airvan.**



Figure 15. Airport Classifications.

## REGIONAL

Regional airports serve as transportation and economic hubs to more than one community. Generally, regional airports need to accommodate larger aircraft, have instrument approaches with low minimums, and have more landside facilities and services than other public use airports. They are usually public use airports, heliports, or seaplane bases that meet at least three of the following:

- Designated as primary airports by the FAA (at least 10,000 annual passenger boardings)
- Air carrier hubs
- USPS hubs or handle more than two million pounds of cargo (freight and mail, enplaned and deplaned) annually
- Have Part 139 certificates
- Serve communities with health facilities that serve two or more communities
- Department of Natural Resources (DNR)-designated primary or secondary fire tanker bases
- Serve communities with Coast Guard facilities



## COMMUNITY

Community airports are the main air transportation facilities for individual communities. At a minimum, they need to accommodate basic health, safety, and emergency needs. In communities with International or Regional airports, the International or Regional airport is the main air transportation facility. In places where communities are close together and accessible to each other year round (within one hour driving time), a Community airport may serve more than one community.

Community airports are subdivided as Off-Road or On-Road depending on whether or not they have year-round road access to the intrastate road system. While it is important for any established community to have reasonable access to air transportation, it is doubly important for communities that lack an alternative to air travel. Ferry service, ice roads, etc. provide other transportation modes some of the time, but they do not provide the same level of availability as a road that is open year round.

Community airports are the public use airports, heliports, or seaplane bases that serve as the main air transportation facilities for communities that:

- Have a permanent population of at least 25
- Have a public school
- Are located more than one hour by road that is accessible year-round from an International, Regional, or other Community airport.



## LOCAL

Local airports accommodate mostly general aviation activity. They supplement International, Regional, and Community airports by providing additional general aviation capacity in the more densely populated parts of the state, and they serve low population areas where a Community airport is not warranted. Runway size, and landside facilities and services depend on the type and quantity of aircraft using the airport. Capability for instrument approaches or nighttime use is less often necessary at Local airports than at Regional and Community airports. Local airports are subdivided into NPIAS High Activity, NPIAS Lower Activity, and Non-NPIAS classes.



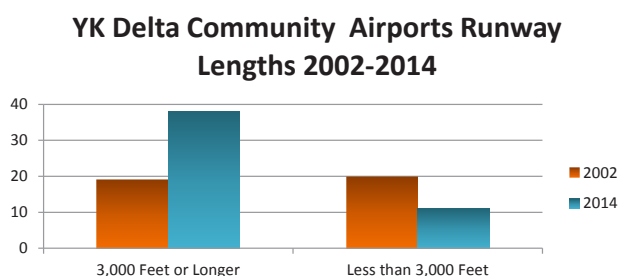
A list of regional, community, and local airports is located on Page 21, Figure 8. Y-K Delta Airport Inventory.

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Three Community Class airports in the Y-K Delta need major improvements and longer runways — Crooked Creek, Kwigillingok, and Newtok. Crooked Creek and Kwigillingok are in substandard condition and the runways should be extended (Figure 16). When the village of Newtok is relocated to Mertarvik, a new airport should be built with a standard 3,300-foot runway.

DOT&PF has determined that extending the remaining sub-3,300-foot Community Class airport runways (Nunapitchuk, Stony River, and Kongiganak) is not feasible due to topographical challenges, low community population, and/or cost. Extending the runways at Lime Village and Telida, both Local Class airports, is also not feasible due to low population. The crosswind runway at the Bethel airport, and runways at Nunam Iqua and Marshall airports should be extended to at least 3,300'. The 3,070-foot-long runway at Mekoryuk should be extended to between 3,600' and 4,000'. Access to this community entails flight over the Bering Sea requiring, in most cases, service by twin engine aircraft as a safety measure in case of engine failure. Ravn Alaska Connect is currently serving the community with a Cessna 406, which requires a minimum of 3,600' of runway given the airport's elevation and mean daily maximum summer temperature.

**Figure 16. Y-K Delta Community Airports Runway Lengths.**



### Runway Approaches

FAA's NextGen initiative has made it possible for instrument-rated pilots using the appropriate equipment to fly Area Navigation (RNAV) approach procedures into airports. These satellite-enabled procedures are made possible by GPS with the Wide Area Augmentation System (WAAS),

which enhances the accuracy of the GPS signal.

RNAV using WAAS offers several major advantages over a conventional ground-based Instrument Landing System (ILS) approach. Unlike an ILS, an RNAV (GPS) procedure is not limited by mountainous terrain or a curved approach into the airport. With an RNAV approach, similar to an ILS approach, safety is enhanced regardless of visibility or time of day. At an airport where an ILS may be out of service, an RNAV approach serves as a key backup. Additionally, many U.S. airports — especially those used by general aviation operators — do not have an ILS or a very high-frequency unidirectional range and are served only by an RNAV (GPS) approach.

Aircraft equipped with WAAS can fly satellite-enabled RNAV (GPS) precision approach procedures with Localizer Performance with Vertical Guidance (LPV) and Localizer Performance (LP) minimums. LPV minimums are similar to ILS. Because an LPV approach provides vertical in addition to horizontal guidance, an LPV approach facilitates safe aircraft operations in a greater variety of weather and daylight conditions than an LP approach. The FAA may determine that an airport should have an LP rather than an LPV approach due to obstacles, terrain, or infrastructure limitations at the airport.

The AASP recommended Aniak, Anvik, Chevak, Holy Cross, Kalskag, Mountain Village, New Stuyahok, Nikolai, and Sleetmute as priority locations for consideration by the FAA for an LPV or LP approach. These AASP approach recommendations were based on airport activity levels, whether the approach is feasible given terrain, obstacles and infrastructure requirements, and carrier input.

Automated weather equipment and weather cameras are needed at many airports as are the aeronautical surveys to provide improved (LP/LPV) approaches. Although runway lighting is still absent at seven airports (Crooked Creek, Flat, Kwigillingok, Lime Village, Newtok, Red Devil, and Stony River), it is only feasible to install lighting at Crooked Creek, Newtok, and Kwigillingok as part

of larger airport improvement projects.

The AASP recommended installation of Automated Weather Observation Systems (AWOS) to facilitate RNAV approaches at Alakanuk, Atmautluak, Crooked Creek, Goodnews Bay, Eek, Grayling, Kasigluk, Kotlik, Nunapitchuk, Pilot Station, Platinum, and Nunam Iqua (Sheldon Point).

#### *Other Improvements*

Lease lots, tie downs, and fuel are generally available where needed in the Y-K Delta aviation system. An annual drainage and surfacing project should be programmed to address ongoing system-wide needs, with DOT&PF Maintenance and Operations staff identifying and prioritizing the airports to be addressed. Airports in the same proximity would likely be addressed at the same time.

#### **4.4.8 Passenger Shelters**

Of the region's 52 public airports, only 10 have passenger shelters to protect passengers and cargo from the weather while waiting to catch a flight or be taken from the airport into the community. Half of these shelters are located at the larger "hub" airports and are provided by the air carriers. The condition of each passenger shelter is unknown.

In 1980, the state Legislature funded the construction of passenger shelters at several remote community airports. These buildings were sometimes called the 50/80 Shelters, a reference to the chapter and year of the funding legislation. Most of these buildings were subsequently destroyed by a combination of a lack of maintenance and vandalism. The ownership of a few remaining shelters was transferred to local governments or the buildings were removed from the airports and into the community for use as housing or storage.

There are no state-funded programs designed specifically to provide public use passenger shelters. However, where major airport construction or maintenance projects are conducted by DOT&PF, upon completion of the project it may be possible for DOT&PF to transfer ownership of the on-site project management building to the local government for use on the airport as a passenger shelter, with an approved agreement.

Local governments can work with the DOT&PF Aviation Leasing section to lease airport property for an airport shelter. In 2015 the Stony River Tribe used their TTP funds to lease airport property from DOT&PF and built a passenger shelter.



*Stony River Passenger Shelter*

## Process for Obtaining a Public Use Airport Passenger Shelter

A local government, as defined by the Alaska Statutes or as recognized as a tribal government by the BIA, is eligible to place a public use passenger shelter on an airport lease lot rent free and without paying application fees if they meet the requirements identified in Title 17 of the Alaska Administrative Code Section 45.130.

The passenger terminal or passenger shelter building must be located on an airport that provides the primary transportation access for a community with a population of at least 25 but less than 1,500, and:

- A.** The land and building may be used for only airport terminal purposes and not for any other private or community purpose
- B.** The land and building must be available for public use free-of-charge, except as provided in (D) of this paragraph, and on a non-discriminatory basis
- C.** The land and building may not be used for revenue-generating purposes, except as provided in (D) of this paragraph
- D.** If and to the extent authorized in the lease and approved by the department, the local government may charge fees no greater than required to recover building operation and maintenance costs.

An Airport Leasing Application and Airport Building Permit Application must be submitted to DOT&PF Statewide Aviation Leasing. Applications must be approved by DOT&PF before the shelter building is moved or constructed on airport property. Applicants are expected to provide and maintain the building for the term of the lease. Leasing and building permit applications can be filled out and submitted on-line by visiting the DOT&PF Statewide Aviation Leasing Online eLeasing System at [www.eleasing.dot.ak.us](http://www.eleasing.dot.ak.us)

## 4.4.9 Seaplane Bases

While this study focuses on Y-K Delta airports, it is important to recognize other landing facilities in the region. Seaplane bases (SPBs) provide landing facilities for aircraft with floats and/or amphibian gear. FAA airport facilities databases indicate that there are 167 registered water runways in Alaska, with 13 of these located in the Y-K Delta. Table 9 below identifies these facilities. Six of these water runways below have been registered with another local airport. For example, Aniak Airport is identified in the FAA 5010 form as having one paved runway and one water runway.

It is important to point out that much of the Y-K Delta is rivers, lakes, and other waterways that floatplanes use, but which are not formally registered as seaplane bases. One of the advantages of a seaplane is that it can take off from an established, registered airport or seaplane base and land on a river or lake that is not an established landing facility. This type of activity allows access for subsistence, flightseeing, and other activities in remote parts of Alaska.

**Table 9. FAA Registered Seaplane Bases in the Y-K Delta Region.**

Airport Name	Local ID	Associated with Local Airport	Water Runway is Primary Runway	Number of Water Runways
AKIACHAK	KKI	No	Yes	2
ANIAC	ANI	Yes	No	1
ANVIK	K40	No	Yes	1
BETHEL	Z59	No	Yes	1
HANGAR LAKE	Z58	No	Yes	1
NAPASKIAK	PKA	No	Yes	1
NEWTOK	WWT	No	Yes	1
NUNAPITCHUK	16A	Yes	No	1
RUSSIAN MISSION	RSH	Yes	No	1
SCAMMON BAY	SCM	Yes	No	1
SHAGELUK	SHX	Yes	No	1
SHELDON POINT	SXP	Yes	No	2
TUNTUTULIAK	Z20	No	Yes	1



#### 4.4.10 AASP Performance Measures

The Y-K Delta airport performance measures scorecards were prepared as part of a statewide airport assessment in the AASP. These scorecards provide a summary of the current performance and adequacy of the airport system. Performance measures are associated with several aspects of an airport’s safety, design standards, and services. The AASP and the Y-K Delta scorecards cover the following two categories:

- *Airport Design Standards Index:* This index measures the extent to which 52 Y-K Delta airports are compliant with various FAA safety and design standards and regulations.
  - Runway Safety Area (RSA)
  - Obstacle Free Zone (OFZ)
  - Threshold Siting Surface (TSS)
  - Runway Protection Zone (RPZ)
  - Crosswind Runway
  - Runway Visibility Zone (RVZ)
  - Parallel Taxiway
  
- *Airport Service Index:* This index examines the facility and service capabilities that are applicable to 49 Y-K Delta airports in the Regional and Community airport classifications to serve their respective markets.
  - Runway
  - Runway Lighting
  - Taxiway
  - Instrument Approach Procedure Minimum
  - Meets Demand for Lease Lots
  - Meets Demand for Tie-Downs
  - Fuel Sales
  - Passenger Shelter
  - Public Toilet

Figure 17 presents the Y-K Delta scorecard for the Design Standards Index. At 81 percent compliance, OFZ is the highest performing category that applies to all Y-K Delta airports.

Figure 18 is the Y-K Delta scorecard for the Airport Service Index. The highest performing categories are Runway Lighting, met by 92 percent of Regional and Community airports in the Y-K region, respectively.

Figure 17. Design Standards Index at Y-K Delta Airports.

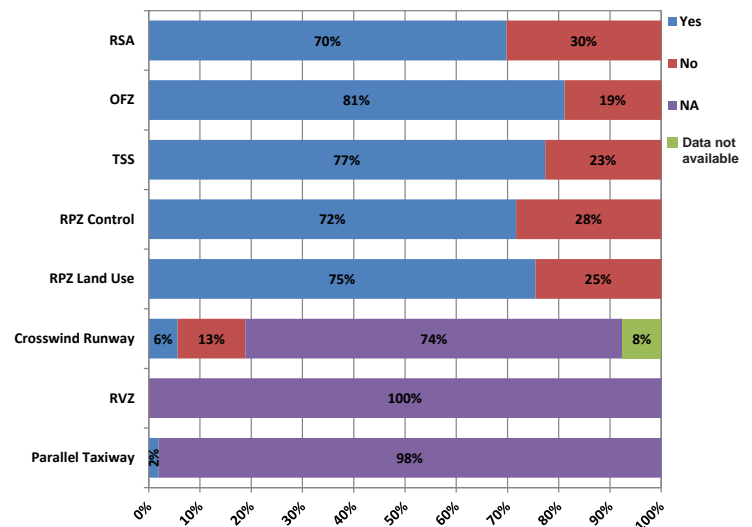
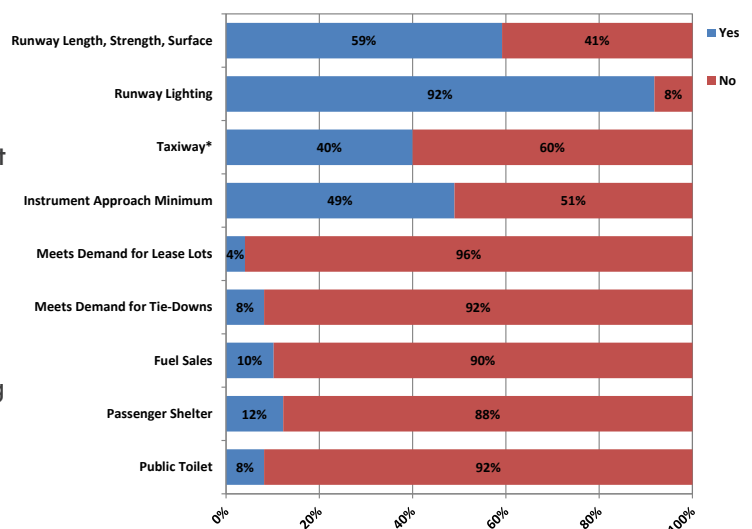


Figure 18. Service Standards Index at Y-K Delta Airports.



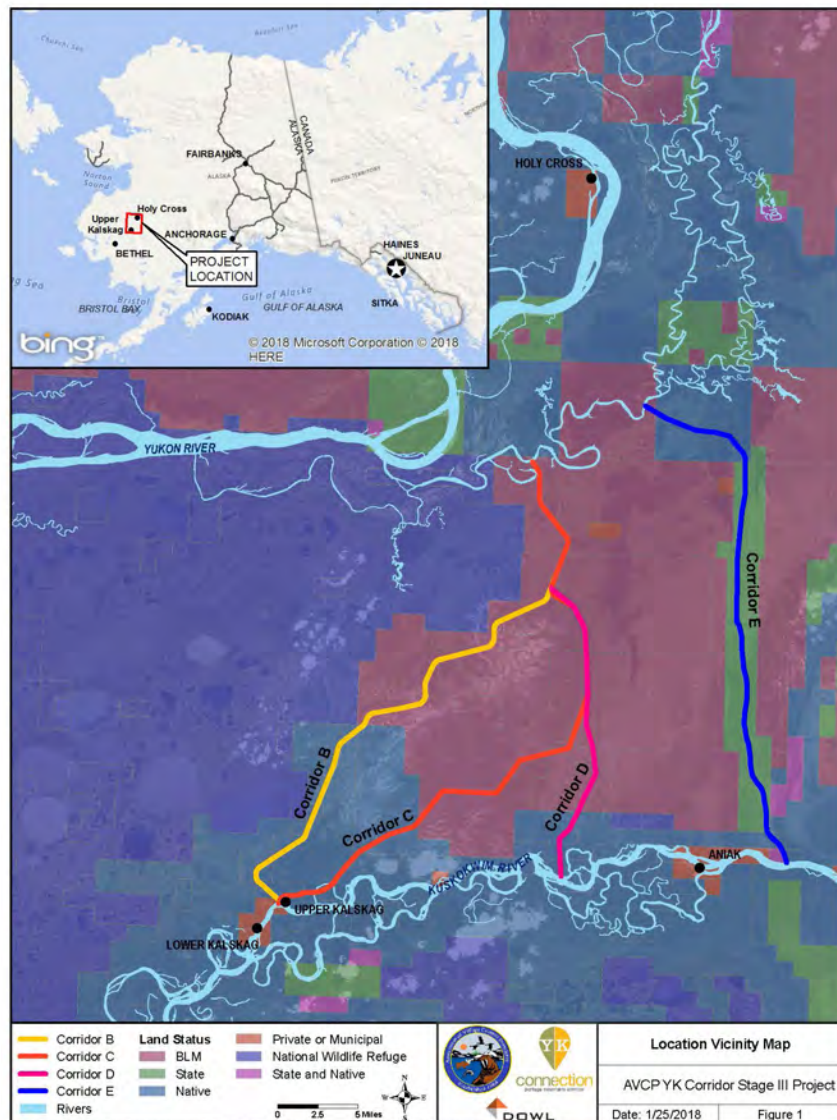
## 4.5 Marine Transportation

Freight movement is critically important to the wellbeing of all Alaska’s communities. High percentages of the state’s workforce and wages are directly linked to freight-dependent industries, such as mining and fishing. The unique size and geography of the state poses a range of challenges for the freight transportation system. In the Y-K Delta, small communities are not connected to the road network and therefore basic goods like food and fuel are brought in by air or barge. The EAS Program and Bypass Mail Program provide important financial support for transport of goods to the communities by passing some of the costs of these services on to other users/taxpayers. In spite of these programs, the costs of transporting basic consumer goods results in prices that are far above national averages. The majority of freight brought to the Y-K Delta comes via barge through the Port of Bethel and up the Yukon and Kuskokwim rivers (Figure 20). During the winter months when these rivers are frozen, freight distribution is more challenging, and freight is more frequently distributed by air.

To help with some of the challenges associated with freight and fuel delivery in the Y-K Delta, AVCP is working to develop the YK Freight Corridor project (Figure 19). The purpose of this project is to connect the Yukon and Kuskokwim rivers with the goal of reducing the cost of fuel and freight delivery, and supporting economic development and connectivity.

The freight corridor route covers 44 miles beginning just upriver of Kalskag, continuing north to a port site on Paimiut Slough. AVCP has selected a preferred corridor based on engineering, environmental, and economic considerations, and representatives from communities in the project area have reviewed and concur with the corridor selection. The next project development phase will continue engineering, subsistence and environmental tasks, a winter-long series of village meetings, and commence efforts with private land owners and the Bureau of Land Management (BLM) to preserve the corridor ROW. While environmental and final design are likely a few years out, the project’s economic studies show the corridor makes sense for the long term.

Figure 19. YK Freight Corridor Project Map.



The Alaska 2036 Long Range Transportation Policy Plan Update (LRTP Update) Freight Element sets out a range of expected needs and opportunities to provide acceptable freight system performance. Relevant needs for the Y-K Delta include:

- Bringing more resources efficiently to markets. Providing freight transportation capacity, particularly to support mining operations.
- Maintaining and enhancing critical connections with Alaska's rural communities, and doing so with constrained public funds.
- Maintaining and improving multimodal connectivity among and between Alaska's urban and rural communities, including standard facilities, mode reliability, cost, and overall performance.

The Y-K Delta is not served by the Alaska Marine Highway System. Unlike the contiguous U.S. where most port facilities were originally developed by private industry, port facilities in the Y-K Delta have been developed almost entirely by the state and federal governments.

Carriers 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. River barges also travel from Nenana and Fairbanks to deliver cargo and equipment for infrastructure projects across western Alaska. The port facility at Saint Mary's acts as a trans-shipment point for barged cargo destined for other remote communities on the Yukon by virtue of its road connection with the St. Mary's regional airport. Cargo includes basic goods and materials, fuel, construction equipment and material, and significant volumes of rock product for regional infrastructure projects. Ocean barges offload and stage cargo in Emmonak, where it can be stored or redistributed to other lower Yukon communities by smaller in-river vessels. This hub system of maritime infrastructure facilitates efficient fuel and cargo distribution in the lower Yukon region where geographical challenges often limit direct deliveries by large vessels.

The chief physical impediment to marine-riverine transport involves seasonality. Winter storms and marine ice restrict the accessibility of coastal port locations. River ice and reduced water flow during the colder months likewise restrict accessibility to communities located in the interior.

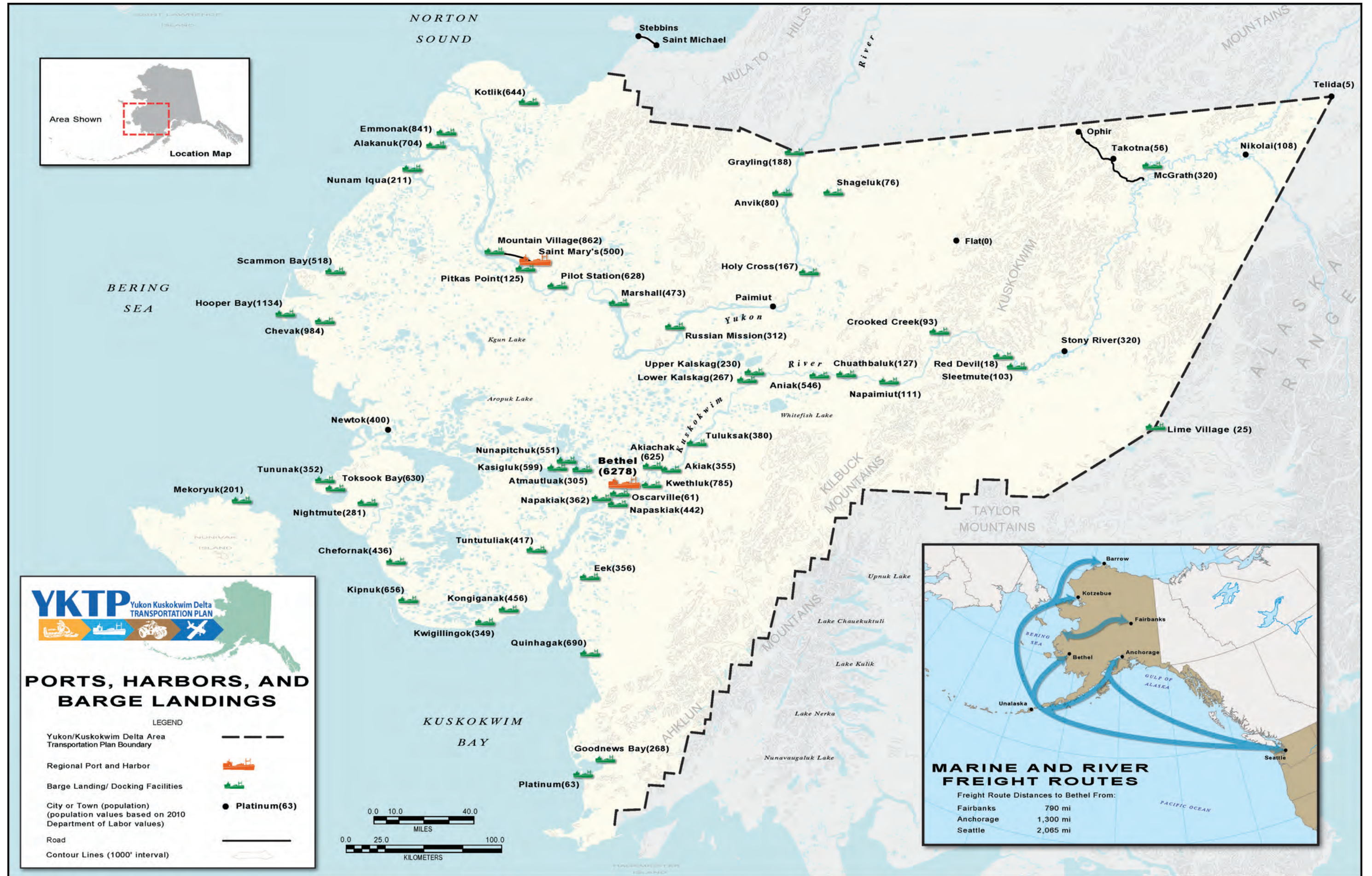
Barge service will remain a dominant transport mode in the Y-K Delta for fuel, large equipment, and industrial supplies. Bypass Mail will remain as the major competitor to marine transport for consumer-related cargo other than fuel. The cost of fuel is approximately 50 percent of the cost of doing business for barge operators, so they try to minimize number of calls to remote facilities. This encourages remote communities to develop local storage facilities. It also promotes a continued reliance on aviation to accommodate unforeseen shortages of essential commodities such as heating fuel.

#### 4.5.1 Ports

Defined as a facility where trans-shipment routinely occurs, there are currently only two ports within the study area: Bethel and Saint Mary's. Emmonak is currently acting as a transshipment hub and is developing a commercial port facility.

The Port of Bethel, a medium-draft facility located about 65 miles upstream from the mouth of the Kuskokwim River, is the northernmost medium draft port in the United States. The Port Cargo Dock is a nine-acre facility originally constructed in 1975 by the State of Alaska. Some upland areas are still owned by the State, but the port is operated by the City of Bethel. The dock consists of four earthen-filled closed sheet pile cells with sheet pile closure walls between. Barges as large as 400' in length can be accommodated on the primary dock face. The petroleum facility, which can berth a 380' barge, handles bulk fuel for Bethel as well as transshipment of fuel throughout the region. The facility's privately-owned tank farm has a capacity of 15 million gallons of fuel storage. The port handles approximately 20 percent of the barged petroleum products and freight activity in the study area. The Kuskokwim area commercial salmon industry also relies on the Port for most of its infrastructure and processing requirements.

Figure 20. Marine Existing Conditions Map.



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Based on the same level of use, the port will need an additional 7.7 acres of uplands by 2030 to handle residential and commercial cargo during the summer and store barges during the winter. Additionally, it is estimated that 16 acres of uplands at Bethel would be required during the construction of the Donlin Mine, including storage space and supporting roads and infrastructure.

The Bethel Small Boat Harbor holds approximately 120 moorage spots, allowing space for 600 to 700 skiffs. It is typical that Bethel sells about 600 moorage permits per year. Residents from the surrounding villages use the small boat harbor to park their skiffs and access public facilities, visit friends and family, attend doctor's appointments, and access other modes of transportation. The small boat harbor is essential for the Y-K Delta economy.

**The Bethel Port presently uses nine acres to handle an average of 9,000 tons of cargo annually.**



St. Mary's is located on the Andreafsky River, five miles from its confluence with the Yukon River and 100 miles from the Bering Sea. This three-acre port facility has a 350-foot-long dock face and provides the only deep-water sheet-pile dock in the lower Yukon drainage. The relatively quiet waters of the Andreafsky River offer shelter from the rapid water and ice flows characteristic of the Yukon River. Incoming ocean-going barges bring large cargo destined for multiple villages, which unload at the port. The loads are consolidated and reloaded to smaller barges destined for individual villages. Vessels with prop, hull, or shaft problems are regularly hauled out at the dock for repair work. St. Mary's is also a wintering spot for barges, tugs, and other vessels. Some are stored on the dock and others are moored at the dock facing.

The St. Mary's area is also a supplier of gravel to the region. The gravel is loaded on to barges from the dock. According to Northern Economics, the data for barged freight in the planning area is all privately held.

Fuel distributed by barge on the Kuskokwim River comes from Unalaska or Anchorage and goes upriver while most of the fuel distributed by barge on the Yukon River comes downriver from Nenana. Bethel is a distribution point for fuel delivered to communities along the Kuskokwim River, and Emmonak is a distribution point for fuel delivered to communities along the Yukon River.

The proposed \$16 million Emmonak port project is intended to accommodate the boat manufacturing and seafood processing industries and provide storage capacity for fuel and freight re-supply of rural communities upriver in the Yukon by ocean-going vessels. The existing unimproved barge landing site at Emmonak consists of bare riverbank soils, which are constructed into a temporary earthen ramp using heavy equipment. Tugs then maneuver barges and push them onto the ramp, holding them in place under power as the barge is offloaded. Heavy equipment is also used as temporary moorings to hold barges in place during offloading. This offloading procedure is difficult, inefficient, and poses considerable risk to shipping industry personnel and equipment. The time and complexity of these operations increase the cost of delivery and delays barges awaiting their chance to offload.

The \$11.8-million Marshall waterfront project is intended to facilitate the development of a nearby rock quarry that will save up to \$24 million in costs for regionally planned airport and road infrastructure upgrades that otherwise require importation of material from Nome, 250 miles away.

#### 4.5.2 Barge Moorings and Landings

Barge moorings and landings are of modest construction and represent the final destination for water-borne shipping. They often consist of little more than a gravel pad and one or

two attachment points for mooring lines. Due to seasonal erosion, keeping physical structures in place, such as timber pilings and retaining walls, is almost impossible. To load and unload, barges must be held against transfer sites by river tugs. This accelerates river bottom and bank erosion. The movement of unsecured barges during off-loading of petroleum products also increases the potential for oil spills. Finding a long-term solution to this problem has been difficult. Historically, DOT&PF has worked with the Denali Commission and others to fund barge landing improvements.

In January 2009, USACE completed the Phase 1 Report of a Statewide Barge Landing Assessment. The purpose of the study was to analyze the barge mooring and fuel/freight transfer needs at Alaska's coastal and riverside communities. The Phase 1 Report included assessments of barge landings on the Yukon and Kuskokwim Rivers as well as coastal locations on the Y-K Delta. The assessment provided:

- A catalog of existing facilities
- A list of barge landing infrastructure improvement needs by community
- Potential design solutions to address the general categories of infrastructure need
- Concept-level design drawings that address a wide range of site conditions expected in the regions covered by the study
- A project ranking system used to develop priority needs
- A prioritized list of projects
- Site plans showing possible landing site improvements at each of the priority sites
- Estimates of probable construction costs associated with the proposed improvements at each of the priority sites

Projects to address identified needs were prioritized according to their ability to improve operational efficiency and safety. Priority projects were identified for 22 communities in the study area. Appendix E includes a list of these communities. Barge landing improvements

and mooring point construction projects began in 2010 and were completed in 2014. Due to federal funding cuts, several prioritized improvements did not get completed. Mooring points that are deteriorating in communities such as Tuntutuliak should be prioritized for improvements to maintain safe, reliable, and efficient barge service.

In 2016, the Denali Commission awarded USACE additional funding to update the USACE 2010 report and to develop an updated, prioritized list of needs (Appendix E).

#### 4.5.3 Federal Freight Policy and Funding

Recent transportation legislation, the FAST Act, includes provisions focused on ensuring the safe, efficient, and reliable movement of freight. The legislation can help provide funding for ports and barge landing facilities in Alaska. The FAST Act:

- Establishes a national multimodal freight policy that includes national goals to guide decision-making.
- Requires the development of a national freight strategic plan to implement the goals of the new national multimodal freight policy. The national freight strategic plan will address the conditions and performance of the multimodal freight system, identify strategies and best practices to improve intermodal connectivity and performance of the national freight system, and mitigate the impacts of freight movement on communities.
- Creates a new discretionary freight-focused grant program that will invest \$4.5 billion over five years. This new program allows states, Metropolitan Planning Organizations (MPOs), local governments, tribal governments, special purpose districts and public authorities (including port authorities), and other parties to apply for funding to complete projects that improve safety and hold the greatest promise to eliminate freight bottlenecks and improve critical freight movements.

## 4.6 Land Transportation

### 4.6.1 Roads

The Y-K Delta has approximately 225 miles of roads. As shown in Table 10 and Figure 21, only about 50 miles of road connects communities to one another. The remaining roadway miles in the region are used for intra-village travel. The long travel distances, poor soils, and large expanses of water in the Y-K Delta require the main modes of transportation to be aviation, or personal boats or snow machines. Roadway travel within villages is often by ATV, and in many communities in the Y-K Delta, boardwalks are used in place of roads due to wet, unstable ground. Most communities in the region have limited road networks that are unpaved, with the longest road segments being those that access airports and landfill or sewage lagoon sites.

As the regional hub, Bethel has a total of about 7 to 8 miles of paved roads Chief Eddie Hoffman Highway (about 4.5 miles), Ridgecrest Drive (about 1.6 miles), Tower Road (about 1 mile), and 1st Avenue access (about 0.2 miles). Bethel is the only community in the region with a transit system. Transit is not feasible in villages with low populations, limited road networks, and limited passenger vehicles. DOT&PF only documents vehicle traffic counts on a few roads in the Y-K Delta. Maintenance responsibility for roads in the region is shared between DOT&PF and local and municipal entities, with the state maintaining approximately 57 percent of the roads in the Y-K Delta. Maintaining roads in the Y-K Delta is more expensive than in other parts of the state as a result of the remote locations and lack of appropriate materials.

**Table 10. Existing YKTP Roads Connecting Communities in the Y-K Delta.**

Road	Length	Ownership	Connects the Communities of
Kalskag Road	3 miles	DOT&PF	Lower Kalskag and Upper Kalskag
St. Mary's-Mountain Village Road	23 miles	DOT&PF	Mountain Village and St. Mary's
Sterling Landing/Takotna/Ophir Road	45 miles	DOT&PF	Sterling Landing and Takotna



#### 4.6.2 Boardwalks

Boardwalks are considered roads in most Y-K Delta communities. Because ATVs and snow machines provide most of the surface transportation, roads have been planned and designed to be vehicle fleet appropriate and easy for the communities to maintain. There are approximately 175 miles of boardwalks in the Y-K Delta (1.2 miles of boardwalk located in Bethel). A typical boardwalk is approximately 10' wide and is built with heavy-duty materials. Boardwalks are easy for the community to build and maintain. The average cost to construct boardwalks in the Y-K Delta is approximately \$2.8 million per mile. This type of construction includes wood surface and steel frame and partial helical piers. The construction of boardwalks is typically accomplished by the local workforce. Materials are shipped to the community. A superintendent is hired to oversee the job and residents perform the construction.

#### 4.6.3 Winter Trails and Ice Roads

Many villages in Alaska are connected by primitive trails that can only be used in the winter months, when the ground is frozen. Residents routinely travel between communities for medical services, church, sporting events, funerals, weddings, cultural dancing events, and for employment. For many, winter is when

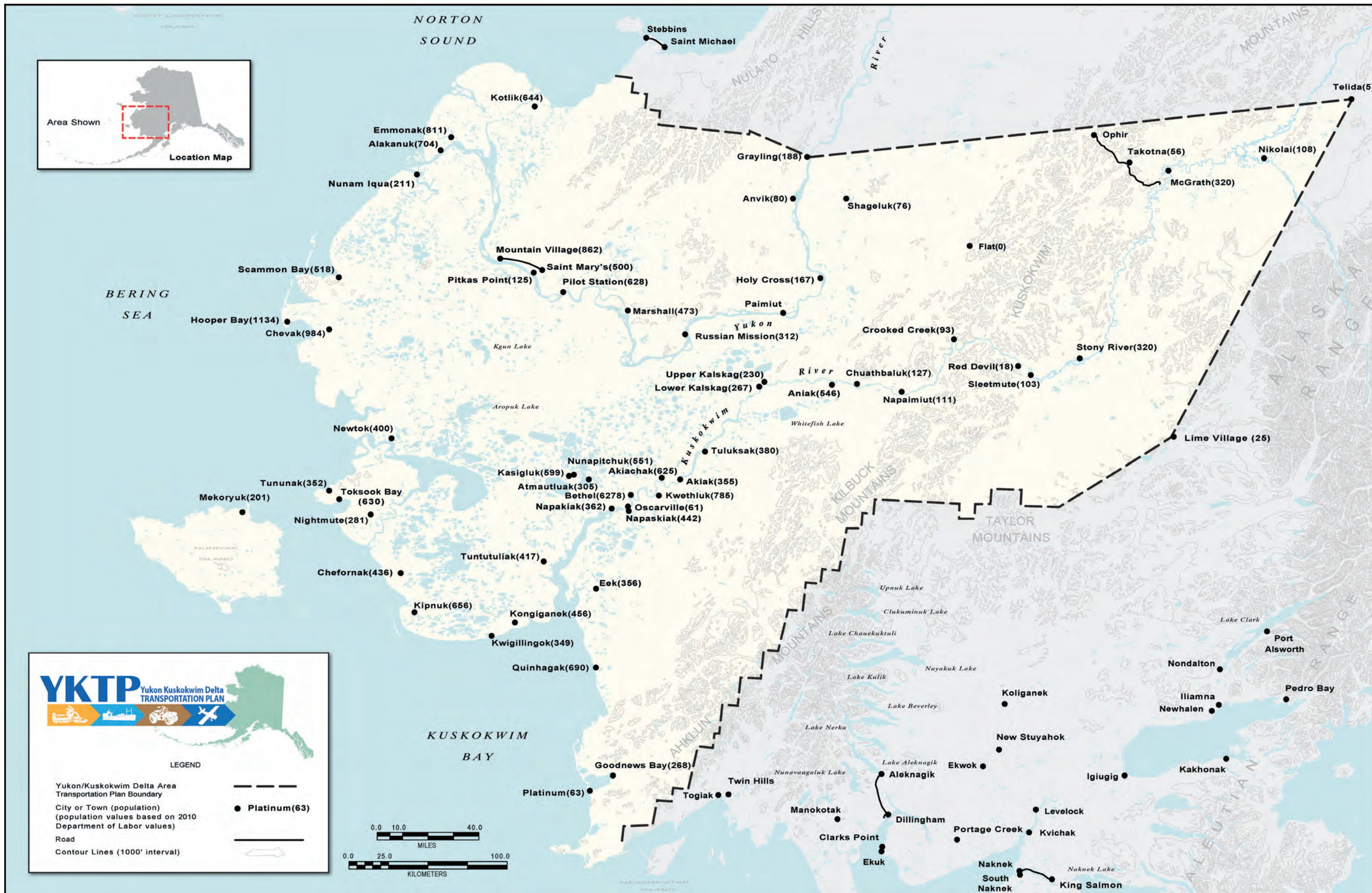
residents can travel to reach specific subsistence grounds. Many of the trails are not marked and most people simply travel the long distances by familiarity, sometimes getting lost. Weather conditions in this region are unpredictable and can change without warning; therefore, winter trail users are at a greater risk of getting lost and disoriented during blizzard conditions. The vast expanse of land in this region does not have many distinct landmarks to guide the way from village to village. Blowing snow can make visibility poor, leaving the possibility of going the wrong direction or going over open water. Because winter trails have a significant role for the Y-K Delta communities, it is necessary to address the safety needs of these trails. Trail markers not only serve as a visual aid for path finding, but they also provide GPS coordinates for travelers to determine their exact location.

With hundreds of miles of winter trails crossing the region, efforts in recent years to properly mark and maintain the trails have been a priority of a number of organizations. DOT&PF's Northern and Central Regions have completed numerous projects erecting semi-permanent trail markers across the Y-K Delta. DOT&PF and AVCP have already begun a program of funding permanent markers in the Y-K Delta. AVCP is working on a winter trail marking



Tuntutuliak Boardwalk

Figure 21. Existing Road Network in the Y-K Delta.



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project to provide the 15 consortium tribes safe access from village to village across federal lands. Design will be complete in 2018/2019. The plan includes marking approximately 3,000 miles of trail routes between consortium villages, and will include safety shelters in between. A study of the environmental impacts of the project is under way. Figure 22 depicts the existing and proposed trail network, and also includes the location of easements [RS 2477 and 17b], which could potentially be used for future trail development.

Villages located along the river system use the rivers as their main transportation corridor during the winter months. There are several safety concerns about the use of ice roads. According to the Bethel Search and Rescue, the tribal and city governments of Napaimute, Chuathbaluk, Aniak, Kalskag, and Lower Kalskag have pooled their resources and coordinated efforts to establish a safe ice road between the Middle and Lower Kuskokwim River. These routes are plowed to knock down the rough ice that remains after the warm weather earlier in the winter. Trail markers are poles with reflectors spaced less than a mile apart. Small reflective stakes are installed between the poles for extra safety. All known open holes in the vicinity of the ice road are marked with willows and blue reflectors and updates are posted to the Bethel Search and Rescue website.

Winter trails and boardwalks in the Y-K Delta are primarily maintained by the tribe and the city through partnerships and coordinated

planning efforts. Funding for maintenance typically comes from TTP funds. AVCP currently receives and administers TTP funds for 15 villages in the Y-K Delta. The TTP program has a set-aside amount of funding each year for tribes for maintenance. These funds are the primary source of maintaining boardwalks and trails in the Y-K Delta region.

#### 4.6.4 Crash Statistics

DOT&PF's Alaska Highway Safety Improvement Program (HSIP), in partnership with the National Highway Traffic Safety Administration, collects traffic safety statistics for all traffic fatalities and non-fatal motor vehicle traffic crashes in Alaska. Data are primarily collected through police reports.

Crash statistics in rural Alaska are very difficult to collect due to small communities not having a police presence, resulting in a lack of reporting. Most crashes are documented at the local or regional health clinic/hospital, or, rarely, they are self-reported to the Alaska State Troopers.

FHWA requires crash data to support and justify safety improvement projects. Given the issues discussed above, DOT&PF and Y-K Delta communities could increase FHWA funding for safety improvements if there was a more effective reporting system to collect crash data in communities that do not have a police presence. It would also be beneficial for DOT&PF and tribal transportation organizations to educate Y-K Delta residents about the benefits of self-reporting.

**AVCP is working on a winter trail marking project to provide the 15 consortium tribes safe access from village to village across federal lands. Design will be complete 2018/2019. The plan includes marking approximately 3,000 miles of trail routes between consortium villages, and will include safety shelters in between.**



#### 4.6.5 Transit

Bethel is the only community in the Y-K Delta that offers a public transit system. The transit system is funded by Federal Transit Administration and the City of Bethel. The transit service began operating in November 2010, providing two fixed routes in Bethel. Bethel has four transit vehicles, providing 1,700 to 2,000 rides per month.

Bethel recently adopted a Complete Streets policy which will support future development of sidewalks and supporting infrastructure for the transit system. In 2016, Bethel received funding to purchase 14 bus shelters, which are being constructed in 2017 and 2018.

Most Y-K Delta communities do not use standard vehicles for basic transportation, and therefore are not seeking to develop local transit systems within their communities. The residents that are from Bethel's surrounding villages use and support the transit system in Bethel.

#### 4.6.6 Airborne Dust

Throughout the planning process, the public stated at each meeting and public event that one of the biggest concerns in the region is dust control, and that dust is a serious health problem for the villages of the Y-K Delta. Wind generates airborne dust and the passage of road or aviation traffic often exacerbates the frequency and intensity of high particulate exposures and the resulting respiratory impacts.

Communities, in partnership with the Denali Commission, University of Alaska, and DOT&PF, have been studying different solutions to help address this concern and evident health issue during the past 10 to 20 years. DOT&PF has applied chemical palliatives at various roads and airport gravel

surfaces to attempt to optimize dust reduction efficacy at the lowest total cost. Almost 20 dust palliatives (chemicals prepared to reduce dust releases) have been tried with varying success in order to reduce the threat to Y-K Delta residents' health and improve overall quality of life. BIA TTP road maintenance funding has also been used to accomplish some dust palliative trials; however, allocation of these funds to dust control limits the total funds available for regular road maintenance, so no consistent programs have been established to date. The various governmental entities/agencies responsible for protecting rural Alaska citizens' health, environmental quality, and transportation infrastructure are continuing to attend to the complex problem of viable, cost-effective dust control.

Water trucks in Bethel and St. Mary's are used to alleviate airborne dust in those communities. Most Y-K Delta communities do not have water trucks. Better solutions are needed, since paving is prohibitively expensive to apply and maintain in small communities.

Unfortunately there is no easy solution to help resolve the dust issue in rural Alaska. In February 2015, the State of Alaska Department of Environmental Conservation (ADEC) issued a publication (Appendix F) to educate communities on dust control options. These options include:

- Reduce traffic – walk or bike
- Slow down
- Improve road surface
- Apply gravel to the road
- Water the road
- Reduce exposed ground



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## 5.0 IDENTIFIED NEEDS AND RECOMMENDATIONS

### 5.1 Identified Needs

Through a review of other studies and data, and the public involvement and stakeholder engagement process, a large list of project needs were identified, reviewed, and evaluated. The PIP and notes from stakeholder and public meetings can be found in Appendix A. The stakeholder and public meetings were the foundation that developed the project list included in the Plan.

An initial project list was developed from public outreach efforts and an analysis of the existing transportation system. The planning team reviewed approximately 20 existing transportation and community plans, and 56 tribal long-range transportation plans, airport master plans, airport layout plans, conducted public meetings in four communities, and distributed a survey to the public and existing air carriers to gather input on issues and needs.

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. A list of transportation projects identified as priorities for the City of Bethel can be found in Appendix G. 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.

### 5.2 Transportation Recommendations

Projects on the following pages 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 the Plan. Projects were then evaluated to determine which ones were regionally significant. For purposes of this analysis, a regionally significant project was defined as project 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. A total of 107 (40 aviation, 40 land, and 27 marine) projects were reviewed and analyzed by a project evaluation team comprising of members of the planning team and representatives from DOT&PF. The team then evaluated and scored projects that were deemed regionally significant using the goals and evaluation criteria developed for the Plan. The scoring process, project list, and scores were shared with TAC for final input. Meeting notes from TAC review 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 in Figure 23.



Children in Newtok, Alaska





## 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 is identified in the City of Bethel's Capital Improvement Plan. The City of Bethel 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>4</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

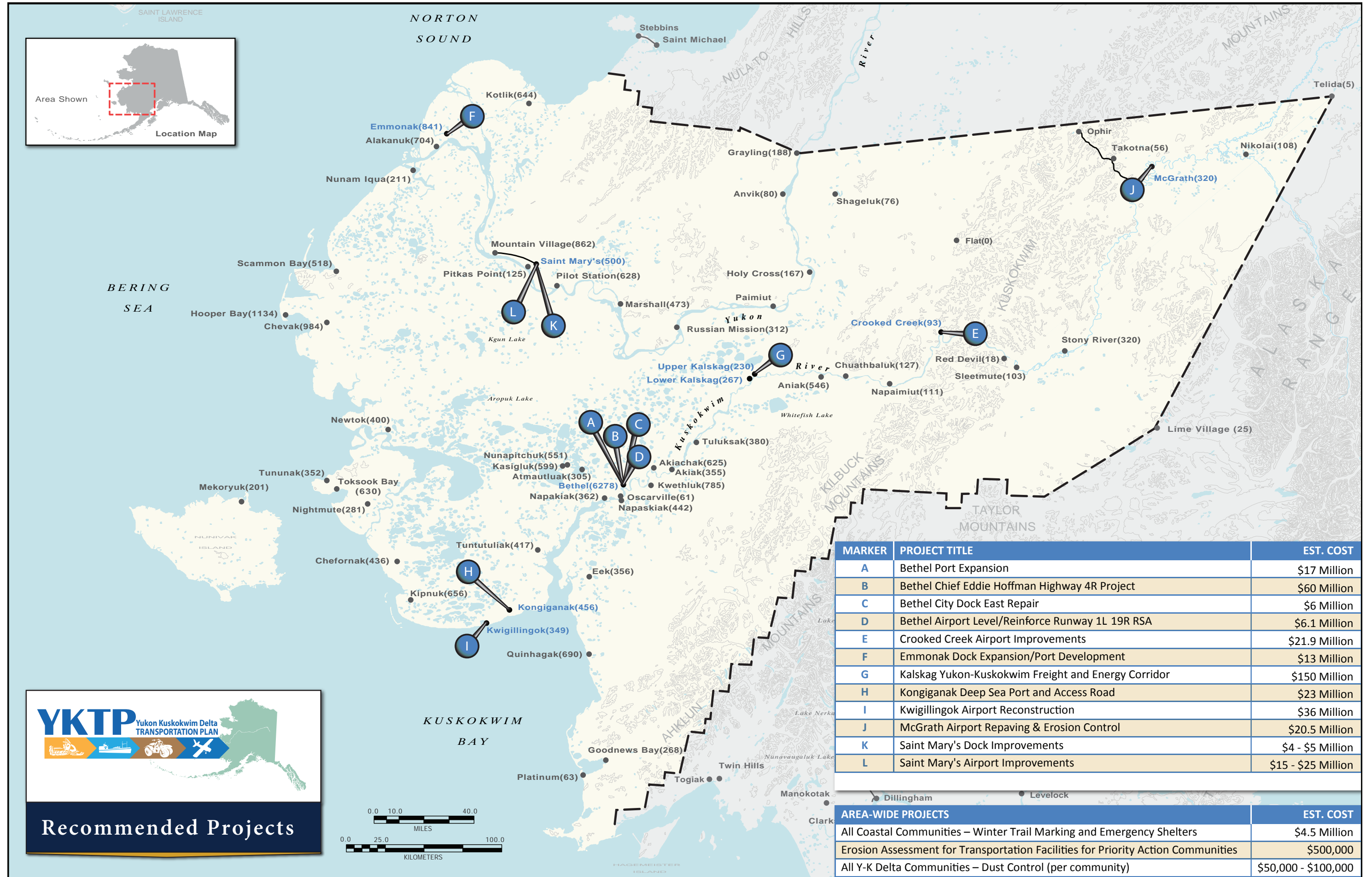
DOT&PF completed a Traffic Impact Assessment (TIA) to analyze the traffic impacts generated by the YKHC hospital expansion and clinic project. The TIA provided information regarding average daily traffic in the area which is currently approaching levels greater than 10,000 vehicles per day. DOT&PF is currently working on a 1R<sup>5</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)

- 4 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.
- 5 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.

Figure 23. Recommended Projects.



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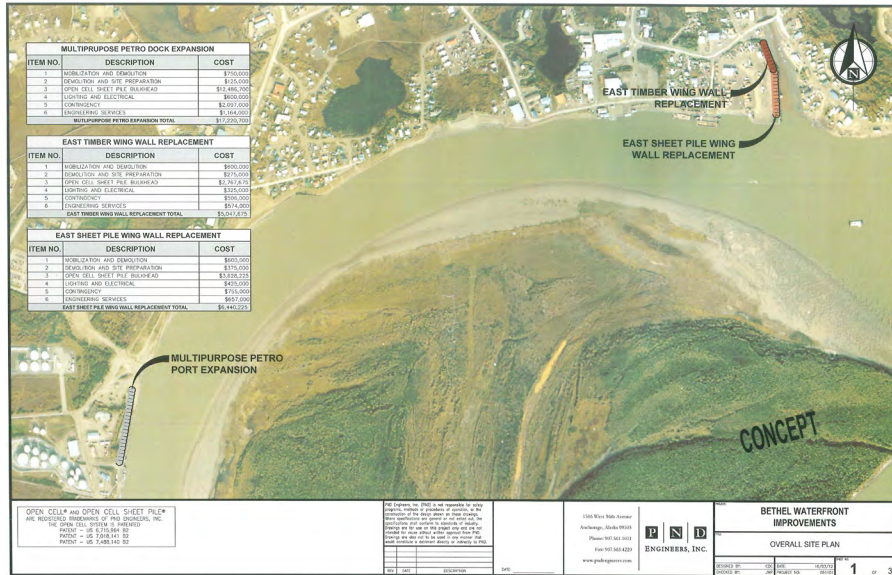
# Bethel City Dock East Repair

### 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

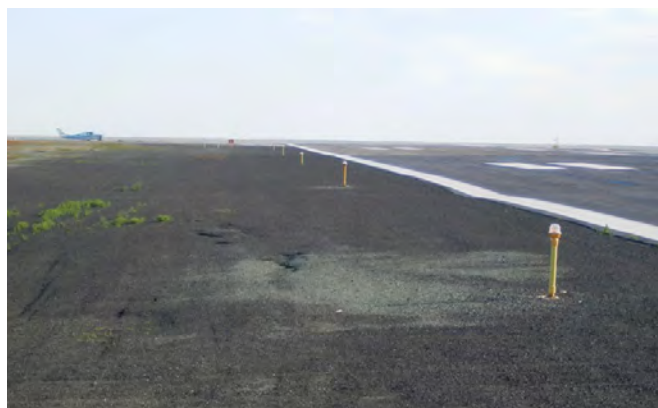
Fill and compact the runway safety area near the Bethel runway bump. Install Precision Approach Path Indicators (PAPI). Bethel is a Regional Class Airport.

### 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 zero to five-year recommendations of the Crooked Creek Airport Master Plan. It will bring the existing sub-standard airport up to standards. The existing 1,997' 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 PAPI, Runway End Identifier Lights and an AWOS. A new, two-bay heated Snow Removal Equipment 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

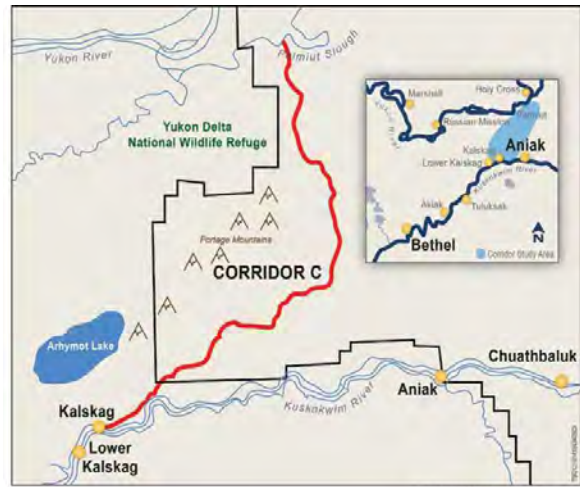
The Yukon-Kuskokwim Freight and Energy Corridor project seeks to develop a 44-mile gravel haul road between the Yukon and Kuskokwim Rivers systems to enhance connectivity among communities in the region. The proposed corridor will allow for travel, trade (fuel and freight), and access to public facilities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

### Status

The project is identified in the BLM 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

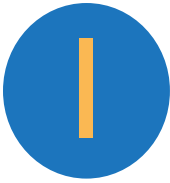
The project is identified in the AVCP's FY13 Community Economic Development Plan. AVCP and the Kongiganak Tribe have secured \$500,000 to commence design of this project.

### Planning Estimate

\$23 million (Source: AVCP)



Kongiganak



## Kwigillingok Airport Reconstruction

### Scope

This project will reconstruct and expand the existing 1,835' runway to 3,300' by 60' 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 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*

# K

## Saint Mary's Dock Improvements

### Scope

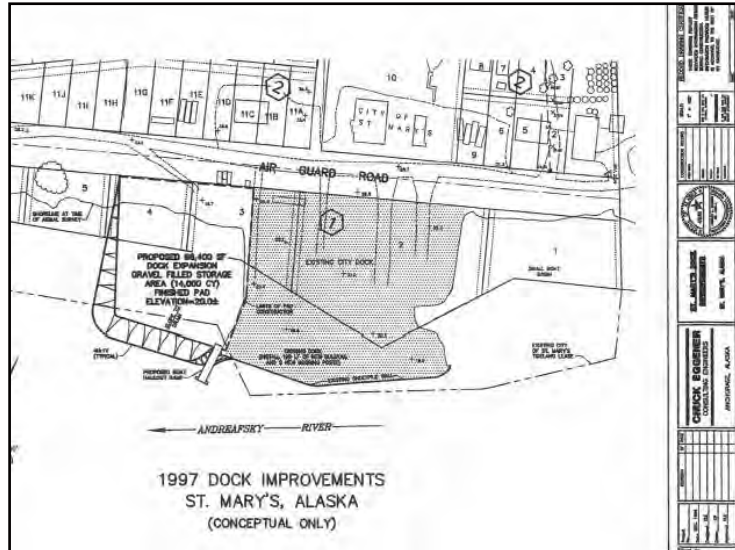
This project will provide dock improvements to allow better access to barges that deliver cargo and fuel to Yukon river villages. It will increase the size of the dock by approximately 66,000 square feet, creating additional cargo and equipment storage space, construct additional mooring posts for more 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

# L

## 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 RSA deficiencies. The improvement project is programmed in 2020 for construction.



St. Mary's Airport

### 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)



## 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.

### Planning Estimate

\$4.5 million (Source: AVCP)



Winter Trail Marking

## 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 USACE are Akiak, Alakanuk, Chefornak, 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

### Scope

The University of Alaska Fairbanks (UAF) 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 ADEC continues to work with the DOT&PF, the Environmental Protection Agency, the Alaska Native Tribal Health Consortium, the UAF, the BIA, 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*

## 6.0 AVAILABLE FUNDING SOURCES

The key to implementing the Plan is to start securing funding for projects. Existing funding resources are discussed in the following section. It is vital to leverage TTP funding with other resources, or use it as a match to secure other funding. The next step is to meet with the funding agencies listed below to discuss ways to secure funding.

Funding for rural transportation projects is scarce. MAP-21 and the FAST Act require states to focus their funding on the NHS. Because all Y-K Delta communities are located off the NHS, they are not eligible for a majority of the surface transportation funding. Aviation is a primary mode of transportation to, from, and around the Y-K Delta, and, fortunately, federal funding for aviation projects has, for the most part, not decreased.

One of the most significant challenges for the State of Alaska is maintaining State services in light of reduced oil revenue and changes to federal transportation funding. The development of partnerships between transportation entities (city, tribal, state, and federal governments) will be increasingly important to leverage funding and meet the transportation needs of the area.

### 6.1 Funding

#### FORMULA FUNDING

This section discusses the existing formula funds that are allocated to the State of Alaska and BIA/Tribal Governments for transportation projects. The primary sources of these formula funds are FHWA and BIA. FAA offers formula-based funding and competitive grants.

#### FHWA Program Funds

As FHWA's partner agency for the State of Alaska, DOT&PF is responsible for the planning and programming of funding under the purview of FHWA. Several types of funding DOT&PF administers allow tribal governments, municipal governments, and other similar entities to nominate projects for inclusion in the Statewide Transportation Improvement Program (STIP), or compete for grant-like funding to complete projects. DOT&PF also administers a state HSIP. The HSIP is a core federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. Table 11 breaks out the amount of funding allocated to all states and to the State of Alaska. The average yearly apportionment to Alaska for FY16-FY20 is \$530 million. The totals over the five-year period are: National Highway Performance Program \$1.5 billion, Surface Transportation Block Grant \$752 million, HSIP \$159 million, Congestion Mitigation and Air Quality Program \$143 million.



*Bethel Ice Road - Kuskokwim River*

### Tribal Transportation Program

FHWA and BIA provide funding and oversight through the TTP Title 23 C.F.R. Some of the 256 tribes partner with other tribes, and work with a tribal transportation organization that administers the TTP on behalf of the tribal entities. In order for tribal governments to spend this money, they must have their project identified in a long range transportation plan and have it added to their inventory and transportation improvement program. FHWA and BIA provide the final review and approval for tribal projects.

### Federal Transit Authority (FTA) Formula Grants for Rural Areas Section 5311 Funding

FTA's Bus and Bus Facilities program received an increase in funding of \$268 million over fiscal year 2015 levels, for a total of \$696 million nationwide for fiscal year 2016. This program helps transit agencies fund new buses and replace aging fleets and facilities, and adds a new eligibility to deploy low- or no-emission vehicles.

FTA has a program that provides formula grants for rural areas, Section 5311 funding. This program provides capital, planning, and operating assistance to states to support public transportation in rural areas with

populations of less than 50,000. The program also provides funding for state and national training and technical assistance through the Rural Transportation Assistance Program. State agencies, local public bodies and agencies, private-nonprofit and private for-profit (inter-city only) organizations, and operators of public transportation services are eligible to apply directly to FTA.

### COMPETITIVE GRANTS

In addition to formula funding, there is a range of funding sources that can be used if the projects meet the core purpose of the funding. These are outlined below.

### Transportation Alternatives Program

MAP-21 authorized the Transportation Alternatives Program (TAP) to provide funding for programs and projects defined as transportation alternatives or non-motorized transportation. The TAP replaced the funding from pre-MAP-21 programs including the Transportation Enhancement Activities, Recreational Trails Program, and Safe Routes to School Program.

**Table 11. 2016 – 2020 FHWA Formula Funding Allocation for Transportation Projects and Programs.**

Federal Funding Program	Purpose	National Funding Amounts	State of Alaska Funding Amounts
National Highway Performance Program (NHPP)	Supports the condition and performance of the NHS for the construction of new facilities on the NHS.	~\$23 billion	~\$1.5 billion
State Highway Safety Improvement Program (HSIP)	The goal of the program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.	~\$2.5 billion	~ \$159 million
Surface Transportation Block Grant Program	Provides flexible funding to address state and local transportation needs.	~\$12 billion	~\$752 million
Congestion Mitigation & Air Quality (CMAQ) Program	Provides funding to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards. Eligible to MPOs with a population greater than 250,000.	~ \$2.5billion	~\$143 million

### **National Highway Freight Program**

The FAST Act establishes a new National Highway Freight Program to improve the efficient movement of freight on the National Highway Freight Network (NHFN) and to invest in infrastructure and operational improvements that strengthen economic competitiveness, reduce congestion, and reduce the cost of freight transportation.

### **Tribal Transportation Program Safety Funds (TTPSF)**

The FAST Act provides two percent of the available TTP funds as a set aside to address transportation safety issues in Native America. Funds are available to federally recognized Indian tribes through a competitive, discretionary program. Awarded annually, projects are chosen based on which outcomes will address the prevention and reduction of death or serious injuries in transportation-related incidents, such as motor vehicle crashes. Tribal entities need to have a Tribal Transportation Safety Plan in order to be eligible for these funds. FHWA supports and funds the TTPSF program as well as education programs and capital infrastructure to help improve safety in rural areas.

### **U.S. Department of Transportation - Transportation Investment Generating Economic Recovery (TIGER)**

The USDOT has made nearly \$500 million (per year) available for transportation projects since 2010 through the TIGER grant program. Applications under this program can be successful if they demonstrate construction ready projects (National Environmental Policy Act (NEPA) and design work is complete), they leverage funds from other sources, and they create jobs and enhance the economic well-being within a community. The TIGER grant program supports innovative projects, including multi-modal and multi-jurisdictional projects;

bicycle lanes, parking, transit, bus shelters and benches, crosswalks; sidewalk improvements such as lighting, curb cuts, and Americans with Disabilities Act (ADA) ramps; and paved shoulders for pedestrian and bicyclist use. The TIGER grant program is focused on capital projects or planning efforts that generate economic development and improve access to reliable, safe, and affordable transportation for communities, both urban and rural. TIGER grant program funding opportunities are highly competitive and are typically announced in late spring.

### **U.S. Economic Development Administration**

The Economic Development Administration (EDA) solicits applications from applicants in rural and urban areas to provide investments that support construction, non-construction, technical assistance, and revolving loan fund projects under the EDA's Public Works and other programs. Grants and cooperative agreements made under these programs are designed to leverage existing regional assets. The EDA provides strategic investments on a competitive merit-basis to support economic development, foster job creation, and attract private investment in economically distressed areas of the United States. This opportunity is open year round. A grant applicant can meet with the local EDA Program Manager to determine eligibility.



*Newtok, AK Barge Landing*

## Western Federal Lands Highway Division

Western Federal Lands Highway Division (WFLHD) of the Office of Federal Lands Highway (FLH) jointly administers the TTP with the BIA. Each federally recognized tribe is eligible for this funding and is allocated an annual dollar amount based on a formula that takes into account tribal population, road mileage, and average tribal shares. These funds are often referred to as “Chapter 2 funds” and can be used by tribes as local match funds on projects funded with Chapter 1 funding.

WFLHD also administers Alaska’s Federal Lands Access (FLAP) Program, a program for surface transportation facilities providing access to, or within, federally-owned lands. This program is designed to encourage cooperation and coordination among federal land management agencies, state agencies, and local and tribal governments. Funding is administered through DOT&PF.

## Denali Commission

In August 2015, former president of the United States, Barack Obama visited Alaska and announced the Denali Commission would be the lead agency for environmentally threatened communities. This new “Environmentally Threatened Communities Program” will focus on 26 Alaska communities, providing funding to communities that are in danger of losing infrastructure due to climate change. The program was described in the Alaska Dispatch News on August 29, 2015.

As the State of Alaska and other stakeholders plan for improvements to the transportation system in the Y-K Delta, the effects of erosion on transportation needs to be considered. Communities located along rivers and the coastline receive their fuel and freight via barge.

<sup>7</sup> 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.

Many barge landings are on eroding rivers and coastlines. Erosion caused by storms, permafrost, and human activity can potentially threaten boardwalks, trails, barge landings, airports, boat harbors, roads, and entire communities.

According to the March 2009 Alaska Baseline Erosion Assessment, almost every community located in the Y-K Delta is experiencing erosion. USACE used a scoring matrix to determine the top 26 communities needing help with erosion mitigation Priority Action Communities (PACs), 11 of which are located in the Y-K Delta: Akiak, Alakanuk, Cheforak, Chevak, Emmonak, Kwigillingok, Lime Village, McGrath, Napakiak, Newtok, and Nunapitchuk. Newtok is losing up to 70' of shoreline per year. Newtok is in the process of relocating and should be prioritized for developing transportation facilities and other infrastructure that support the relocation.

The Denali Commission also has a transportation program that receives small amounts of program funding for tribal transportation projects each year. They can provide technical assistance to communities upon request to help with government coordination among state and federal agencies. Denali Commission funds can be used as non-federal match.

## U.S. Army Corps of Engineers

USACE has several cost-shared programs that Priority Action Communities can use for assistance. The USACE’s authority to construct solutions for erosion control is under Section 117 of the 2005 Energy and Water Development Appropriations Act (Alaska Baseline Erosion Assessment). In addition to the Section 117 funding, USACE and the Denali Commission have an agreement to work on special waterfront and port projects across the State of Alaska. Projects are funded based on a prioritization list that was developed in the 2012 USACE Barge Landing Assessment.

## Federal Aviation Administration

FAA administers the AIP which is a combination of formula and competitive grant opportunity that provides grants to public agencies and, in some rare cases, to private airport owners and entities for the planning and development of public-use airports that are included in the NPIAS. Eligible projects include those improvements related to enhancing airport safety, capacity, security, and environmental concerns. In Alaska, FAA's partner agency is the DOT&PF. The Plan will be useful in supporting airport projects DOT&PF evaluates under the Aviation Project Evaluation Board (APEB) process.

Y-K Delta airports have been awarded a significant amount of funding for capital improvements over the last 11 years. Since 2003 the FAA has spent over \$434 million on airport planning and development on Y-K Delta airports. This represents an average of \$39.5 million per year, of which approximately \$524,000 per year was spent on planning and \$39 million per year was spent on airport development. These federal expenditures have generally covered 93.75 percent of project costs, with 6.25 percent covered by State general funds.

**Table 10. FAA Airport Funding of Y-K Delta Airports FFY 2003-2014.**

	Airport Development	Planning	Total
Total	\$429 million	\$5.7 million	\$435 million
Annual Average	\$39 million	\$524,000	\$39.5 million

### 6.1.1 State Sources of Capital Funding

#### The Alaska Legislature

Each year the Alaska Legislature develops capital and operating budgets for the state. In years when the State's fiscal situation allows, transportation projects using State general funds are included as line items in the capital budget. Additionally, the legislature periodically drafts bond bills that are then voted on by state residents during general elections. Projects identified in an approved bond bill are funded through the sale of general obligation bonds, which are repaid at a later date using specified state revenues.

#### State of Alaska Department of Commerce, Community, and Economic Development (DCCED)

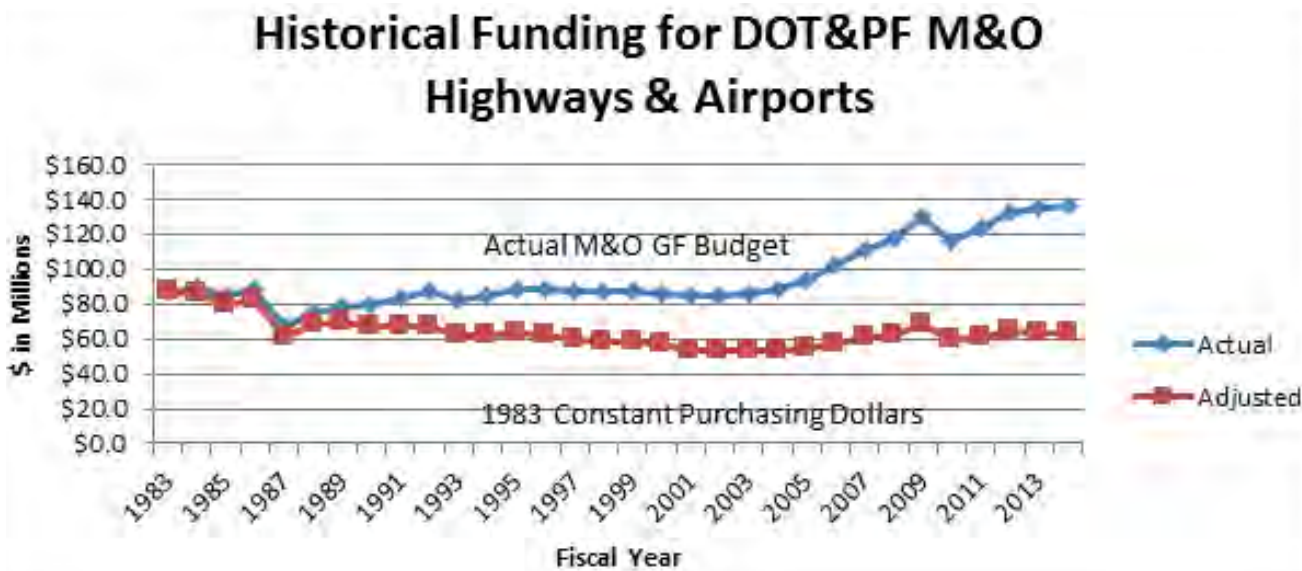
DCCED administers several programs for developing and maintaining transportation infrastructure vital to a community's success. Most notably, it administers the Community Development Block Grant (CDBG) program, funded by the U.S. Department of Housing and Urban Development (HUD). Once each year, municipal governments are able to apply for CDBG funding for an array of project types, which include transportation improvements. In addition to capital projects, HUD also allows CDBG funding to be used for planning efforts.

**6.1.2 Operating and Maintenance Funding**

Operating and maintenance funding will continue to be a critical concern. While the capital funding received by Alaska from the federal government has resulted in substantial improvements to Alaska’s highway, marine, and airport systems, maintenance funding has not kept pace with system growth. Federal transportation programs typically do not fund facility maintenance; individual states and local government owners of transportation infrastructure are expected to maintain the facilities.

Figure 24 shows State funding for highway and aviation facility maintenance received by DOT&PF in 2015 was almost equivalent to the funding received in 1987, adjusted for constant dollars. This does not account for the additional highway lane miles and airport surfaces added to the state transportation system since 1987, which further adds to the underfunded maintenance. These improvements generate additional operating costs for electrical power, snow removal, grading, and pavement maintenance. In addition, DOT&PF’s maintenance budget must now also support many federal mandates that did not exist in 1987, like Transportation Safety Administration security directives, new Federal Aviation Regulation Part 139 airport certification requirements, and U.S. EPA storm water and spill prevention requirements.

**Figure 24. Historical Funding for DOT&PF M&O Highways and Airports.**



Actual \$ from 1983 - 2009 from DOT&PF Statewide Aviation; actual \$ 2010 - 2014 from AK OMB. Anchorage CPI from AK Department of Labor & Workforce Development.



## 6.2 Measuring Success

The passage of the FAST Act and MAP-21 fundamentally changed the way that states plan and program transportation projects. States are now transitioning to performance-based programming, which is being driven by the following two factors:

- National Performance Goals
- National Performance Measures

Subsequent sections of MAP-21 established guidelines for the development of national performance measures. Currently, the USDOT is working with state transportation officials to develop performance measures in the following areas (23 USC §150(c)):

- Safety
- Infrastructure condition
- Congestion reduction
- System Performance
- Freight movement and economic vitality
- Environmental sustainability
- Accelerated project delivery

The performance measures for each of these areas will be used to monitor states' progress in meeting the national performance goals.

Because the primary focuses of MAP-21 (and now the FAST Act) performance management framework is the interstate highway system and the NHS, much of this information is not immediately applicable to transportation projects in rural Alaska. Most tribal entities and local governments in small villages are not measuring successes, instead they are focused on getting basic transportation projects built for the first time.

The focus on the Interstate and NHS systems means that there is less FHWA funding for rural communities. Tribal entities receiving funding from FHWA through the TTP should consider incorporating the FAST Act performance measures and targets so projects are aligned with the national goals.

As discussed in Section 4.4.9, the AASP has established aviation service and design standards performance measures that will continue to be measured to monitor progress in meeting state DOT&PF aviation goals. Some ports and harbors are being measured by the income they generate. The main port in the Y-K Delta, Bethel, measures their success on the amount of funding they receive from moorage, offloading, staging, and storage fees.



**DOWL**

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## CONTACT INFORMATION

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