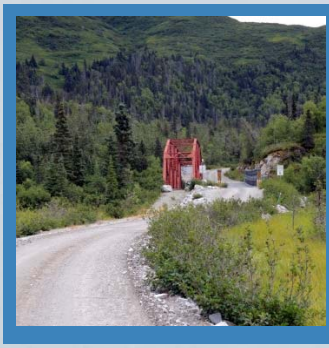
Southwest Alaska
Transportation Plan Update

Final Report

APRIL 2016

Dear Reader, April, 2016

The Alaska Department of Transportation and Public Facilities would like to thank all of you for taking the time to provide feedback. You have helped develop a long range transportation plan that provides a vision for the future while recognizing current challenges. Your stewardship during this financially-challenging time will help make the most of limited resources, and position our state for a bright future.

Special appreciation goes out to those who facilitated meetings, provided critical input throughout the planning process, and helped to get the word out about the plan:

- Bristol Bay Borough
- Bristol Bay Native Association
- City of Dillingham
- City of Kodiak
- City of Unalaska
- Kodiak Archipelago Rural Regional Leadership Forum
- Kodiak Island Borough
- Lake and Peninsula Borough
- Southwest Alaska Municipal Conference

SOUTHWEST ALASKA

TRANSPORTATION PLAN UPDATE

IRIS PROJECT NUMBER Z804080000

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April 2016

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TABLES

APPENDICES

LIST OF ACRONYMS

AAC ..... Alaska Administrative Code
AASP ..... Alaska Aviation System Plan
AEB ..... Aleutians East Borough
AIP ..... Airport Improvement Program
ALP ..... Airport Layout Plan
AMHS ..... Alaska Marine Highway System
ATV ..... All –Terrain Vehicle
AVEC ..... Alaska Village Electric Cooperative
BBB ..... Bristol Bay Borough
BBNA ..... Bristol Bay Native Association
DCCED ..... State of Alaska Department of Commerce, Community and Economic Development
DEC ..... Alaska Department of Environmental Conservation
DNR ..... Alaska Department of Natural Resources
DOLWD ..... Alaska Department of Labor and Workforce Development
DOT&PF ..... Alaska Department of Transportation and Public Facilities
DUNS ..... Data Universal Numbering System
EPA ..... U.S. Environmental Protection Agency
EAS ..... Essential Air Service
FAA ..... Federal Aviation Administration
FFY ..... Federal Fiscal Year
FHWA ..... Federal Highway Administration
FTA ..... Federal Transit Administration
GF ..... General Fund
GPS ..... Global Positioning System
HPP ..... High Priority Program
IRR ..... Indian Reservation Roads
KIB ..... Kodiak Island Borough
KMZ ..... keyhole markup language
LPB ..... Lake and Peninsula Borough
LP ..... Localizer Performance
LPV ..... Localizer Performance with Vertical Guidance
LRTP ..... Long Range Transportation Plan
M&O ..... Maintenance and Operations
MAP-21 ..... Moving Ahead for Progress in the 21st Century
MDA ..... Minimum Decent Altitude
MEDEVAC ..... medical evacuation
MLLW ..... mean lower low water
MOU ..... Memorandum of Understanding

MP ..... Milepost
M/V ..... Motor Vessel
NHS ..... National Highway System
NPIAS ..... National Plan of Integrated Airport Systems
NOAA ..... National Oceanic and Atmospheric Administration
OMB ..... Office of Management and Budget
Pebble ..... Pebble Mine Project
PLP ..... Pebble Limited Partnership
Port ..... International Port of Dutch Harbor
ROW ..... right-of-way
RSA ..... runway safety area
SAM ..... Federal System for Award Management
SAFETEA-LU ..... Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users
SIDCO ..... Spruce Island Development Corporation
SREB ..... Snow Removal Equipment Building
STIP ..... Statewide Transportation Improvement Program
SWATP ..... Southwest Area Transportation Plan
TIGER ..... Transportation Investment Generating Economic Recovery
TRP ..... Tustumena Replacement Project
UAF ..... University of Alaska Fairbanks
UGF ..... Undesignated General Funds
U.S. ..... United States
UMC ..... Unalaska Marine Center
USACE ..... United States Army Corps of Engineers
USCG ..... United States Coast Guard
USC ..... United States Code
USDOT ..... United States Department of Transportation
USGS ..... United States Geological Survey
WAAS ..... Wide Area Augmentation System

EXECUTIVE SUMMARY

The Southwest Alaska Transportation Plan (SWATP) informs transportation development decisions to maximize the public benefits from transportation investments in Southwest Alaska. The purpose of this plan is to address various modes of transportation needs, and provide guidance for responsible investment. The SWATP is an element of the Statewide Long Range Transportation Plan.

The study area for SWATP encompasses four incorporated boroughs and two federally recognized census areas: the Aleutians East Borough, the Aleutians West Census Area, the Bristol Bay Borough, the Dillingham Census Area, the Kodiak Island Borough, and the Lake & Peninsula Borough. The combined area of the four boroughs and two census areas (including water area) equals 93,875 square miles. It is an area roughly equivalent to the state of Oregon (Southwest Alaska Municipal Conference, 2016).

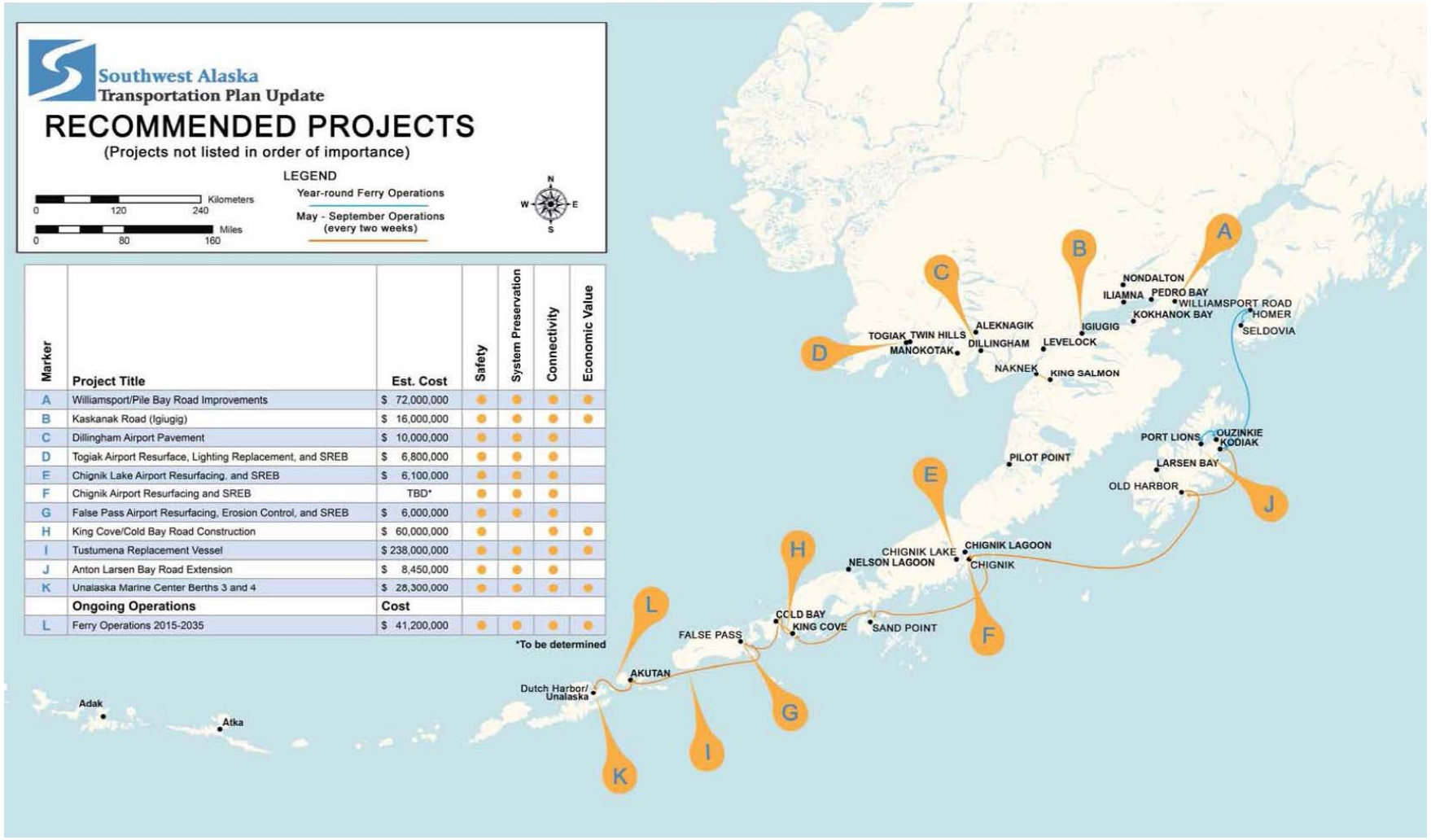
The road system in Southwest Alaska is limited; a majority of the communities are not connected to one another. The transportation system is comprised of airports, gravel roads, ATV trails, boardroads, river channels and the Pacific Ocean. There is very little transit offered; and walking/biking is not recreational choice, but a necessary mode of transportation.

During the SWATP planning process, oil prices dropped from ~$100 per barrel to ~$40 per barrel causing the State of Alaska to face a ~$3 billion budget deficit. Future State funding was uncertain. To help the Southwest communities through these uncertain times, the DOT&PF Planning Team prepared the SWATP so that the document can be used to seek various funding sources, locally and nationally. The plan recommends 11 regional projects[1] for development over the next 10 to 20 years, which are marked A through L in Figure ES-1.

[1] Regional projects serve transportation needs between communities, provide access to public facilities or major modes of transportation; and have extensive development requirements.

The plan also includes a list of 77 (42 surface, and 35 aviation) projects that the DOT&PF Planning Team identified as transportation needs in Southwest Alaska (Appendix A).

This plan does not obligate funding, nor promise development of projects listed. It does provide a list of projects that meet the goals and objectives of this plan based on 2016 socioeconomic conditions, regional transportation needs, and stakeholder input.



Marker	Project Title	Est. Cost	Safety	System Preservation	Connectivity	Economic Value
A	Williamsport/Pile Bay Road Improvements	$ 72,000,000	●	●	●	●
B	Kaskanak Road (Igiugig)	$ 16,000,000	●	●	●	●
C	Dillingham Airport Pavement	$ 10,000,000	●	●	●	
D	Togiak Airport Resurface, Lighting Replacement, and SREB	$ 6,800,000	●	●	●	
E	Chignik Lake Airport Resurfacing, and SREB	$ 6,100,000	●	●	●	
F	Chignik Airport Resurfacing and SREB	TBD*	●	●	●	
G	False Pass Airport Resurfacing, Erosion Control, and SREB	$ 6,000,000	●	●	●	
H	King Cove/Cold Bay Road Construction	$ 60,000,000	●		●	●
I	Tustumena Replacement Vessel	$ 238,000,000	●	●	●	●
J	Anton Larsen Bay Road Extension	$ 8,450,000	●	●	●	
K	Unalaska Marine Center Berths 3 and 4	$ 28,300,000	●	●	●	●
	Ongoing Operations	**Cost**				
L	Ferry Operations 2015-2035	$ 41,200,000	●	●	●	●

*To be determined

Figure ES-1: Recommended Projects

Source: DOWL GIS and Planning Department

The 11 recommended projects are:

A. **Williamsport to Pile Bay Road (WPB):** This project would upgrade the road from Williamsport in Cook Inlet to Pile Bay on Lake Iliamna, from a single-lane seasonal road to a two-lane road open year round. *Estimated cost: $72 million. See letter A on the map above.*

B. **Kaskanak Road:** This road project would portage around seven miles of flats along the Kvichak River. With the Williamsport Pile Bay Road project, this project provides a multimodal link between Anchorage, AK and the communities of Bristol Bay. *Estimated cost: $16 million. See letter B on the map above.*

The aviation projects listed below are among the many aviation projects in Southwest Alaska that are being considered by the DOT&PF:

C. **Dillingham Airport Pavement Rehabilitation:** This project may include shifting the runway to address safety issues. *Estimated cost: $10 million. See letter C on the the map above.*

D. **Togiak Airport Resurfacing, Lighting Replacement, and Snow Removal Equipment Building (SREB):** Lighting would be replaced on the runway, taxiway and apron. *Estimated cost: $6.8 million. See letter D on the map above.*

E. **Chignik Lake Airport Runway Resurfacing, and New SREB:** This project may include a runway shift away from the community, and geotechnical investigation. *Estimated cost: $6.1 million. See letter E on the map above.*

F. **Chignik Airport Resurfacing and SREB:** The existing SREB is in an area that should remain clear of buildings to improve safety for arriving and departing aircraft. *Estimated cost: to be determined. See letter F on the map above.*

G. False Pass Airport Runway Resurfacing, Erosion Control and Lighting: This project includes apron expansion, and lighting improvements include a beacon and windsock. *Estimated cost: $6 million. See letter G on the map above.*

WPB and Kaskanak Road together establish a link between Alaska's population center in Anchorage and the fertile fishing grounds of Bristol Bay, home of 4 of the top 5 ports in the nation for value of landings. These connections will reduce the cost of living for Southwest residents through easier shipment of commodities.

H. King Cove/Cold Bay Road: This project would construct a single-lane road with turnouts between King Cove and Cold Bay. Alaska's congressional delegation continues to seek solutions to an impasse with the United States Department of Interior regarding a road crossing the Izembek Wildlife Refuge. *Estimated cost: $60 million. See letter H on the map above.*

I. Tustumena Replacement Project: The Motor Vessel (M/V) *Tustumena* predominantly provides ferry service to 11 Southwest Alaska communities in Kodiak, the southern Alaska Peninsula and the eastern Aleutian Chain. As the vessel ages, it is requiring more lay-up time and higher costs for repairs. The replacement vessel is in design, and is anticipated to be slightly larger and have a higher speed than the existing *Tustumena*. *Estimated cost: $238 million. On the map above, letter I references the vessel's Southwest Alaska route.*

J. Anton Larsen Bay Road: This road extension would connect Kupreanof Straight communities of Port Lions and Ouzinkie to the City of Kodiak, provides the City of Kodiak with access to ice-free waters, and accesses gravel resources along the route. *Estimated cost: $8.5 million. See letter J on the map above.*

K. Unalaska Marine Center Berths 3 and 4: Unalaska's location on the Great Circle marine navigational route, coupled with existing infrastructure and maritime services, make Unalaska a prime candidate to serve as a crossroads between Arctic and Asian-American routes, serving regional and international economic interests. This project upgrades two of the seven berthing positions, improving AMHS service, expanding the capacity for vessels served, and improving uplands services. *Estimated cost: $28.3 million. See letter K on the map above.*

Ongoing ferry operations 2015-2035:

L. Maintain existing Alaska Marine Highway System ferry service to Southwest Alaska: If current funding levels continue, the AMHS can maintain current service levels using the *Tustumena* or her replacement, supplemented by the M/V *Kennicott* when needed. Estimated cost: $41 million. *On the map above, letter L and I references the AMHS's Southwest Alaska route.*

These projects were selected from a list of 77 projects considered by the DOT&PF Planning Team. The list was developed through public outreach since the update was initiated in 2011, and through review of existing community and regional plans. DOT&PF staff selected projects that best met the goals of the plan: Safety, System Preservation, Connectivity, and Economic Value. As part of the analysis, DOT&PF considered projects recommended in the 2004 update, determined their current status, and if they should be carried forward. DOT&PF also inventoried existing issues and needs for each mode, and for the region as a whole. Runway length, approach minimums, and air service to communities that receive limited barge service received explicit consideration. Other issues included cost of living, economic growth, isolation, safety and security, and focusing limited resources on transportation hubs.

Availability of funding for construction, operations and maintenance continues to be a challenge. One upcoming opportunity is for freight route funding under the new federal transportation legislation. Southwest Alaska is highly dependent on marine services for delivery of heavy freight and fuel. Arctic development will require staging and storage of development equipment, and Unalaska is well-positioned to provide these services. On the other hand, Alaska continues to address budgetary shortfalls resultant from low oil prices, and a potential shifting of federal funding priorities for key programs for the Denali Commission, Essential Air Service and Bypass Mail.

As with any plan, users will need to carefully evaluate current conditions to make sure recommended projects still meet the goals and objectives outlined. Project development partners will be increasingly important in helping with these evaluations and in meeting funding needs. By working together to leverage funding and construction opportunities, we can keep Alaska moving through service and infrastructure.

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1.0 INTRODUCTION

The Southwest Alaska Transportation Plan (SWATP) will inform transportation development decisions to maximize the public benefits from transportation investments in Southwest Alaska.

Alaska regulations require statewide long range transportation plans be updated at least every five years. Updates reflect population and economic trends, transportation service demands, changes in technology, economic development projects, and the identification of new transportation objectives (Alaska Administrative Code [AAC] 05.130(b)). In 2011, the Alaska Department of Transportation and Public Facilities (DOT&PF) started an update to the 2004 SWATP. The SWATP includes planning for various vehicle fleets (planes, all-terrain vehicles [ATVs], snow machines, barges, skiffs, and automobiles) and modes of transportation (aviation, surface, and marine), and is one of six area transportation plans being incorporated into the Alaska Statewide Long Range Transportation Plan (LRTP).

SWATP Vision

To inform transportation development decisions to maximize public benefits from transportation investments in Southwest Alaska.

The SWATP is:

- *A regional planning document.*
- *A planning document for various modes of transportation and stakeholders.*
- *Guidance for responsible investment in the Southwest Alaska area.*
- *One of six area transportation plans adopted as components of the LRTP.*

The SWATP is not:

- *A programming document.* This plan does not obligate funding, nor promise development of the projects listed.
- *A document only for DOT&PF.* This plan is a tool for communities, regional groups, and businesses to coordinate infrastructure development.

The Southwest Alaska area consists of four incorporated boroughs and two federally recognized census areas. The boroughs include the Kodiak Island Borough (KIB), Lake and Peninsula Borough (LPB), Bristol Bay Borough (BBB), and Aleutians East Borough (AEB). Census areas encompass the Dillingham Census Area and Aleutians West Census Area, which includes the Pribilof Islands (Figure 1). The study area is approximately 93,875 square miles.

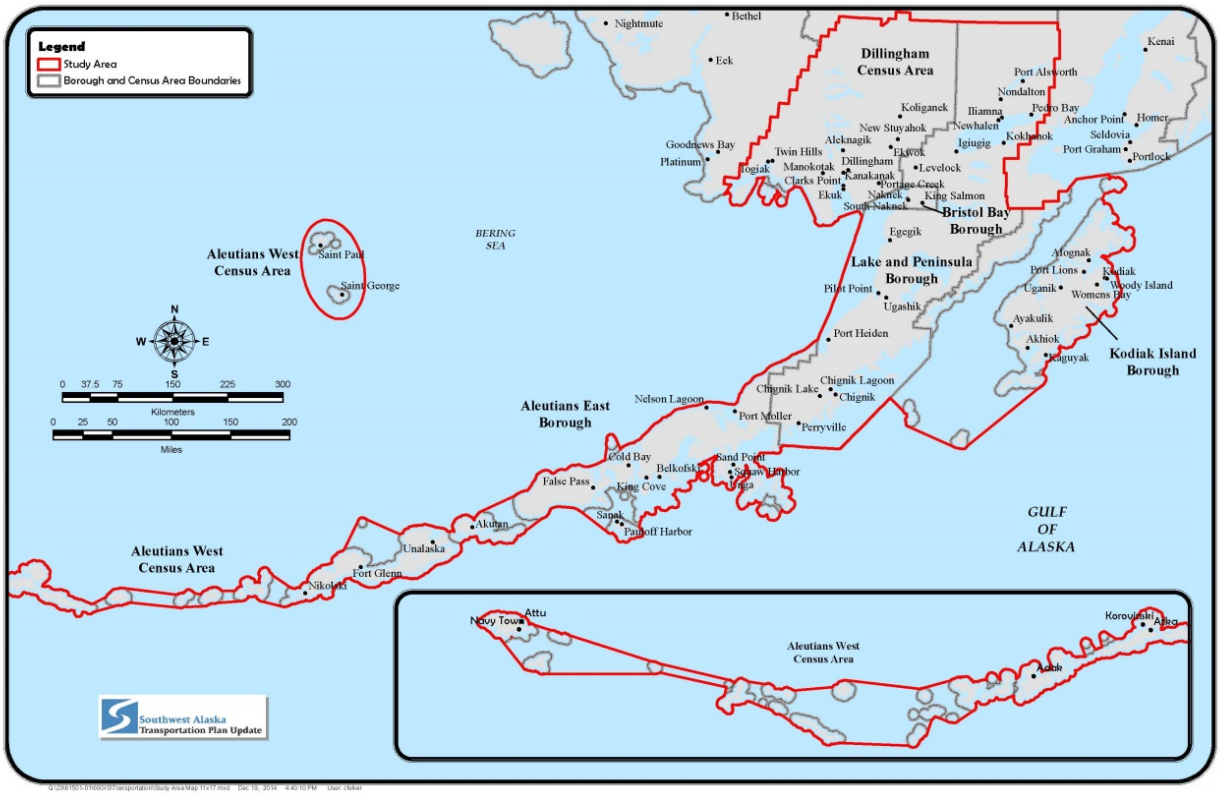


Figure 1: Southwest Alaska Study Area

The study area includes Kodiak, the Alaska Peninsula, Bristol Bay, the Aleutian Islands, and the Pribilof Islands.

2.0 PLAN METHOD AND PROCESS

The SWATP planning process was divided into two phases. Phase 1 inventoried existing transportation infrastructure and identified issues and needs through public outreach. Phase 2 focused on:

- Applying current transportation planning regulations and guidance to the plan.
- Establishing vision, goals, and objectives.
- Analyzing, prioritizing, and recommending projects.
- Engaging with the public.

2.1 Transportation Planning Regulations and Guidance

For projects in this plan to participate in federal and state funding, this plan must align with the policy guidelines outlined in current transportation legislation: federal requirements outlined in Moving Ahead for Progress in the 21st Century (MAP-21); and the State of Alaska's transportation planning regulations, found in 17 AAC 05.

MAP-21 focuses on incorporating performance goals, measurements, and targets into the planning process, in order to hold the states accountable for the projects they plan. The Federal Highway Administration (FHWA) is still developing the performance measurements. The State of Alaska anticipates these measures will be enforced under the next highway bill, or the revision of MAP-21. In preparation for the anticipated performance measures, the DOT&PF is requiring regional transportation plans to consider MAP-21 and the LRTP goals while establishing objectives that can be measurable in the future.

MAP-21's performance management goals include:

- Safety - To significantly reduce traffic fatalities and serious injuries on public roads.

- Infrastructure condition - To maintain highway infrastructure in a state of good repair.
- Congestion reduction - To significantly reduce congestion on the National Highway System (NHS).
- System reliability - To improve the efficiency of the surface transportation system.
- Freight movement and economic vitality - To improve the national freight network, strengthen rural community access to national and international trade markets, and support regional economic development.
- Environmental sustainability - To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- Reduced project delivery delays - Expedite the movement of people and goods through improved project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

The LRTP provides statewide guidance on policy priorities and strategies. This regional plan was started under Alaska's LRTP, "Let's Get Moving 2030." The LRTP was undergoing an update when this regional plan was developed, providing some challenges in coordinating common goals. The revised LRTP created eight policy and action areas:

1. New Facilities;
2. Modernization;
3. System Preservation;
4. System Management and Operations;
5. Economic Development;

6. Safety and Security;

7. Livability, Community, and Environment; and

8. Good Government.

Relevant federal agencies may provide additional guidance in their area of concern. For instance, the United States Department of Transportation (USDOT) Federal Transit Administration (FTA) provides guidance for transit planning in non-metropolitan areas. The USDOT Federal Aviation Administration (FAA) provides Advisory Circulars providing guidance on building and operating airports to airports that receive federal funds. USDOT's Office of Federal Lands Highway provides guidance on LRTPs and transportation improvement programs that serve tribal or federal lands.

2.2 Establish Vision, Goals, and Objectives

The vision for the SWATP is: **to guide transportation development decisions to maximize public benefits from transportation investments in the region.**

Federal guidance, State guidance and public input shaped the goals and objectives for this regional plan update. The goals are general enough to comply with the anticipated intent of subsequent LRTP guidance updates. Throughout the planning process (**Figure 2**), many different stakeholders with unique priorities participated. Clear goals and objectives facilitate a project selection process with integrity.

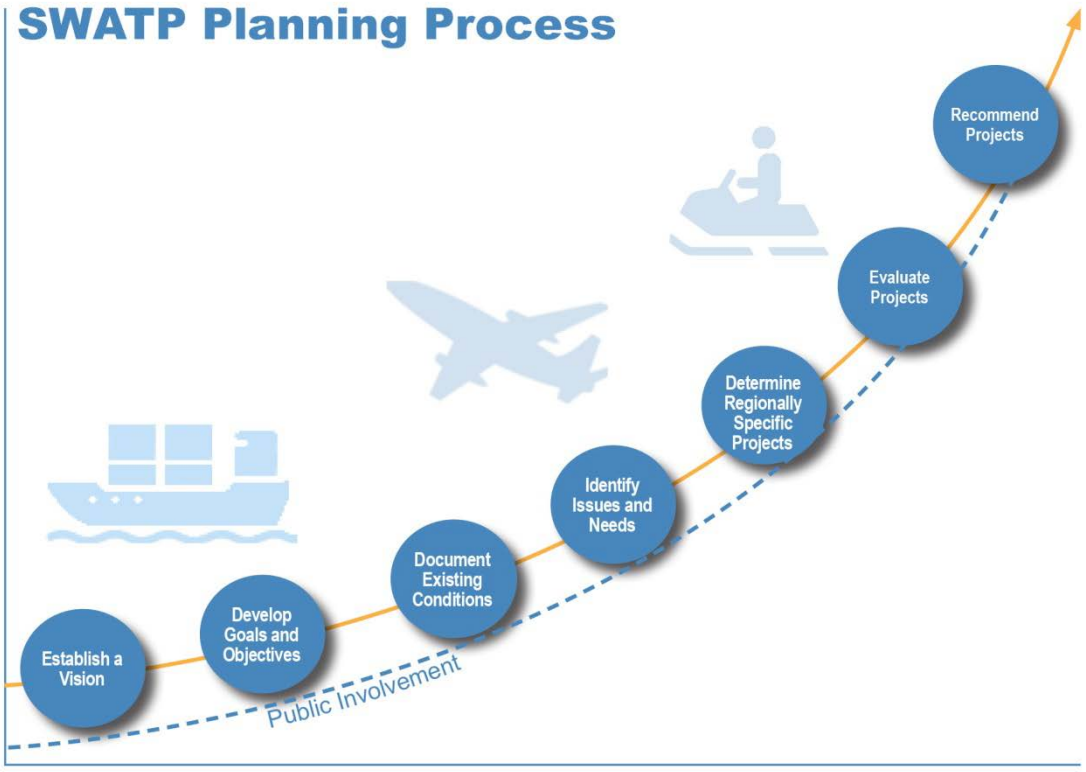


Figure 2: The Planning Process

This figure illustrates the planning process, and was presented during public involvement.

The four goals are safety, system preservation, connectivity, and economic value.

Goal #1: Safety

- Improve operational safety and security.
- Reduce risks for the Southwest Alaska transportation system users.

Objectives:

- Bring all airports up to FAA standards where practicable.
- Address safety needs identified in the airport layout plans (ALPs), the Alaska Aviation System Plan (AASP), and other planning documents.

Goal #2: System Preservation

- Preserve and maintain the existing Southwest Alaska transportation system.

Objectives:

- Resurface runways at Regional Class airports where pavements are deteriorating.
- When federal funds have been allocated, complete on-going projects at high-traffic, Community Class airports in a timely fashion.
- Provide all airports with adequate maintenance and provide lighting where practical.
- Provide maintenance equipment and snow removal equipment buildings.
- Rehabilitate facilities at risk of failing. While system preservation ideally addresses structures before they fail, funding restraints have limited funds available for preventative maintenance, and failures need to be addressed.
- Maintain existing Southwest ferry service.

*Categorizing Airports**

Regional Class airports are public use airports, heliports, or seaplane bases that serve as an economic or transportation hub for more than one community, indicated by having at least three of the following characteristics: • At least 10,000 annual passenger boardings • An air carrier hub • A postal hub or more than 2 million pounds of cargo handled annually • Scheduled passenger service in aircraft with at least 30 seats • Community has a health facility serving two or more communities • Primary or secondary fire tanker base • Community has a Coast Guard air station, air support facility, or forward operating station.

Community Class airports include public use airports, heliports, or seaplane bases that serve as the main air transportation facility for an individual community providing, at a minimum, basic health, safety, and emergency needs. The community must have a minimum year-round population of at least 25 people and a public school. The community airport must be at least one hour driving time (over year-round accessible road) from an international, regional or other community airport.

Local Class includes airports, heliports, or seaplane bases that accommodate mostly general aviation activity.

** Alaska Aviation System Plan*

Goal #3: Connectivity

- Improve intermodal connections.
- Establish or improve access to airports, barge landings, ports, and docks.
- Improve access to transportation hubs.
- Improve regional transportation hub access to other communities in the state.
- Provide access to public services and facilities such as health clinics, hospitals, and schools.

What is a hub?

A hub is an area that serves as a central location or focal point for a particular activity.

A transportation hub is a location where passengers and/or freight move between vehicles or transportation modes to travel on to other communities. Southwest Alaska has several regional transportation hubs. Communities such as King Salmon, Kodiak, Iliamna, Dillingham, Cold Bay and Unalaska all see high volumes of travelers and cargo each year, with many of the travelers and freight moving on to smaller communities nearby.

Transportation hubs can also serve as economic hubs. Economic hubs are areas that see a high level of economic activity, such as the production, distribution, and consumption of goods and services. In economic hubs you may see more banking, and increase access to retail and distribution facilities.

Objectives:

- Maintain surfacing and runway length at Regional Class airports.
- Maintain Regional Class airports to encourage continued air service.
- Improve airports with limited or no barge access.
- Improve aprons (expansion and resurfacing) at Regional Class airports.
- Invest in projects that connect two or more communities.

Goal #4: Economic Value

- Provide intermodal connections that enhance economic activity, bringing new business or money to the region.
- Provide access to fisheries.
- Enhance freight mobility.

Objectives:

- Invest in transportation projects that have strong benefits of supporting resource development, fishing, and tourism.

2.3 Analyze and Prioritize Projects

This plan focuses on transportation corridors that serve multiple communities and regionally-significant facilities and industries. Maintaining and improving existing facilities and enhancing safety have priority, and new construction will be strategically implemented.

The DOT&PF Planning Team initially considered approximately 77 aviation and surface transportation projects. This project list resulted from a review of the 2004 SWATP, a review of DOT&PF funding plans, and through public input. The list includes regionally significant projects from other plans (comprehensive plans, community transportation plans, etc.). Most projects improve transportation between communities in Southwest Alaska at some level, but not all were in line with the LRTP, or the SWATP goals and objectives.

The DOT&PF Planning Team evaluated whether projects met the goals and objectives of this plan. These employees included the Central Region Surface Transportation Planning Manager, the Central Region Aviation and Programs Planning Manager, the Kenai Area Planner (acting for Southwest); the Matanuska-Susitna Area Planner (assisting with Southwest), and the Operations Manager for Statewide Aviation.

The DOT&PF Planning Team identified 11 projects for inclusion in the plan based on their maximization of public benefit through regional transportation development. The list was vetted at public meetings in Unalaska, Dillingham, King Salmon, and Kodiak in September and October 2015.

After the meetings, communities submitted resolutions requesting consideration of additional projects, and the DOT&PF Planning Team reviewed eleven additional projects for inclusion in this plan. Two of them were added to the plan's list of recommended projects. One project originally on the key projects list was removed, because it was significantly developed. The result is a list of 11 key regional projects, listed and described in Section 8.0 of this plan.

Appendix A lists projects evaluated, along with the review standards for establishing compliance with goals and objectives.

2.4 Public Involvement

Beginning 2011, the DOT&PF Planning Team conducted public outreach, and received feedback that guided this update. The primary goal of engaging the public was to identify common Southwest transportation priorities and stakeholders that may be a part of implementing projects identified in this plan (Figure 3). Given the funding issues identified in Section 3.2, transportation stakeholders will need to leverage resources to accomplish common goals.

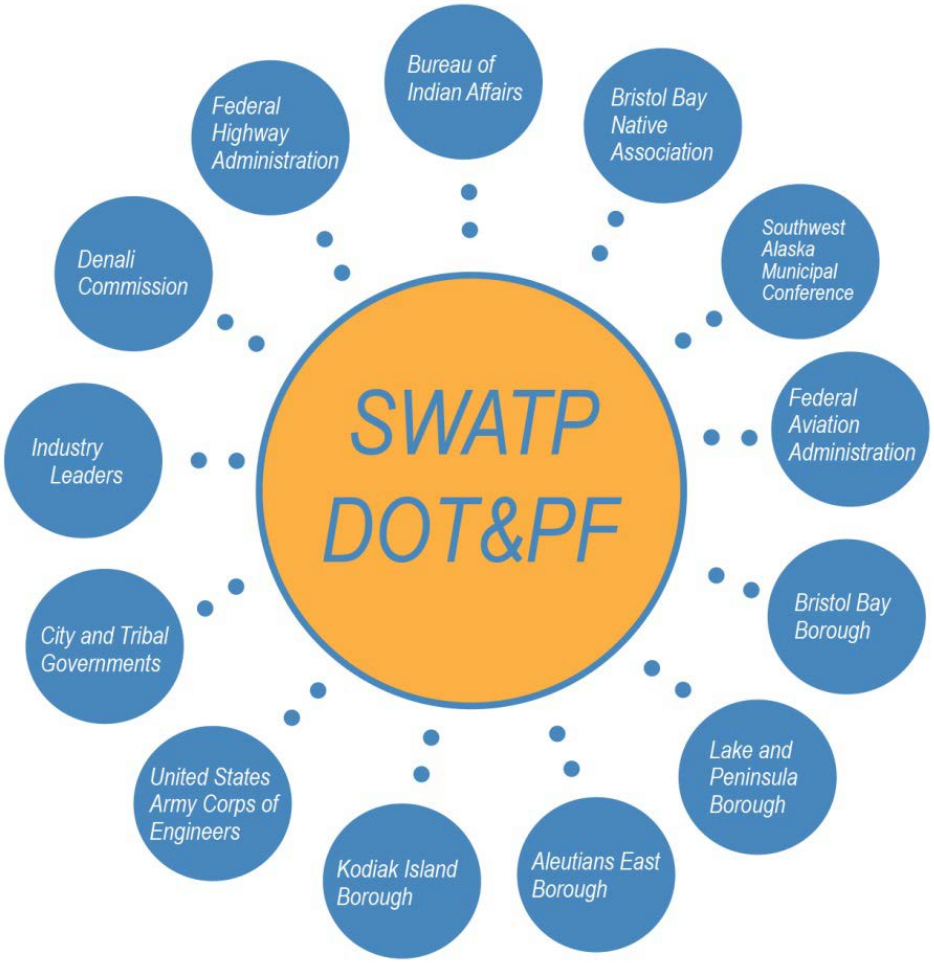


Figure 3: Southwest Alaska Transportation Plan Stakeholders

This figure was presented during public involvement, and shows stakeholders who may be instrumental in implementing the projects in this plan.

Appendix B has additional documents from public involvement. Public involvement guided public vetting of goals, objectives, and project priorities for the region (Figure 4).

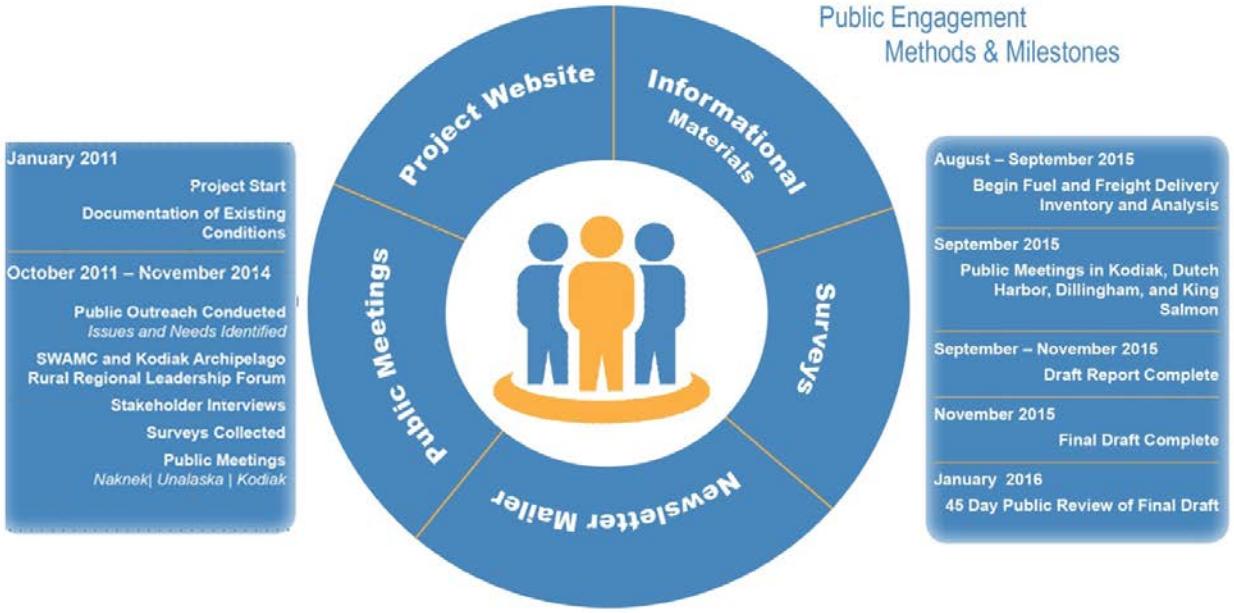
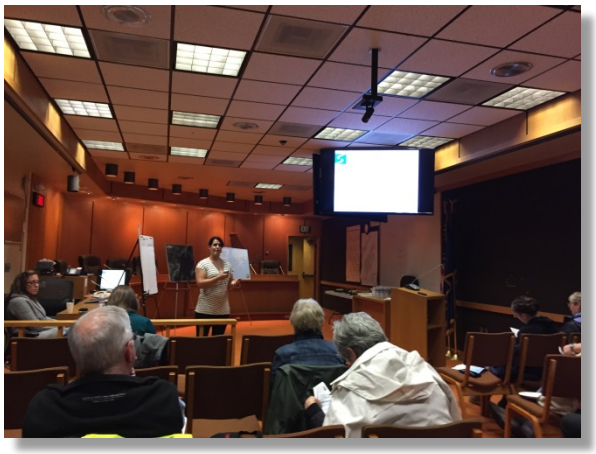


Figure 4: Public Engagement, Methods and Milestones

The figure above was presented during public involvement. Pictured below are community meetings in Kodiak (left) and Unalaska (right)



3.0 FUNDING AND PLANNING ENVIRONMENT

The State of Alaska does not have a regulatory or statutory mechanism by which the Department receives consistent annual State funds to address transportation projects, and the State is heavily dependent on federal funding sources to fund transportation infrastructure. Most transportation projects in Alaska are funded with approximately 90 percent federal funding. The remaining 10 percent is funded through the State of Alaska's General Fund, and is a required match by federal funding providers. During the completion of this plan, the President signed a five year highway bill called Fixing America's Surface Transportation (FAST) Act. The bill includes funding for highways and transit projects. Additional information on the FAST Act programs and funding can be found on the U.S. DOT FHWA website.

Federal funding sources for surface projects include the FHWA and FTA which are paid for by federal gas taxes. Federal airport improvement projects are funded through the FAA's Airport Improvement Program (AIP), which is paid for through federal user fees, fuel taxes, and similar sources of revenue.

Governments at the federal, state and local level have the common challenge of funding construction and maintenance of transportation infrastructure. On one hand, transportation infrastructure supports a healthy community and economic development. On the other hand, the taxes and fees charged to build and maintain infrastructure impact the business and individuals that pay them.

One tool for generating revenue is taxation. Taxes can be applied to income, property or purchases. The funds generated by taxes can be pooled for general governmental use, often called a "general fund." Taxes can also be directed to a specific fund. For instance, federal gas taxes are directed to the Federal Highway Trust Fund. These funds are then allocated to states for use on transportation projects. The State of Alaska fuel tax goes into the general

fund. The legislature then treats those funds like any other general funds, and can choose to spend them on transportation projects or for other government projects. For more information on State fuel taxes, refer to Alaska Statutes, Section 43.40.010, "Tax on transfers or consumption of motor fuel and expenditure of proceeds."

Fees can be collected for certain state functions, as when licensure fees collected by the Alaska Department of Motor Vehicles help fund the agency. Fares collected by the Alaska Marine Highway System (AMHS) fund about 30 percent of their operating budget.

Taxes and fees can be collected by governments at any level, including tribal governments.

The revenues collected through taxes and fees can have limitations associated with them. Some federal funding types are reserved for projects improving busy highways, while others are reserved for more local roads. Some federal funding is set aside for transit, some for other transportation needs.

As transportation funding dollars see more competitive pressure, communities should anticipate fully leveraging multiple funding sources in order to develop, design, and construct transportation projects. A transportation project may have multiple elements and could possibly leverage multiple funding sources. As an example, a road project might also address salmon habitat in a culvert, in which case a watershed conservation agency might be able to provide some funding. Road construction could clean up a hazardous materials area, and environmental conservation funds may be available to fund that element of the project. A road project could require utility upgrades that qualify for United States (U.S.) Department of Agriculture or State of Alaska Village Safe Water funding. A number of Southwest Alaska airports were used by the military during World War II, and may qualify for funding to clean up environmental contamination, a process that could be paired with a construction project (Figure 5).

When one agency provides funding, it can be attractive for other agencies to participate in the project. Most funding entities have limited funds, and the act of providing some funding for a project shows that it is important. If one agency is funding a project, another one knows that the project has been vetted, there is a common commitment of funds, and interested agencies will need to provide that much less.

Figure 5: Cold Bay Airport

Cold Bay's airport was built and extensively used by the military during World War II, and could qualify for environmental clean-up funding.

Funding from multiple sources will take extra time for grant application coordination and agency requirements. One funding agency might require one form of accounting, while another needs a different one. One agency might require daily construction reports, while another needs a weekly summary. With advance coordination, these conflicting requirements may be reduced, and necessary reports consolidated. Sometimes, one funding agency has enough experience with handling money that other agencies will allow them to manage the whole project. In some cases, the Denali Commission would provide some funding for rural road development to DOT&PF. The two agencies would agree on how the money would be spent and any accounting or reporting requirements. Often these agreements are documented in a Memorandum of Understanding (MOU). These streamlining efforts provide more efficient project delivery and reduce reporting and delivery complexity.

While using multiple funding sources for a project presents some challenges, it has the advantage of meeting multiple needs with one project, and reducing the individual obligations to one agency. Below is a discussion about some of the funding sources available for transportation projects in Alaska.

3.1 Funding Sources

Each type of funding available for transportation projects has different opportunities and limitations. Any transportation development partners should have a basic understanding of funding available, and where to start discussions on how it is being used. Outlined below are some common funding sources, resources for more information, and initial contact information for someone who can provide further context.

FHWA: The FHWA provides each state with surface transportation funding from the Highway Trust Fund. At the state level, this funding is broken down into funding categories, each targeting different sorts of transportation with different rules. For example, some funds are for safety projects, some for large highways, and some for bridges. One of the accounts, the Ferry Boat Program, provides some funding for AMHS. How these funds are divided up is determined by Congress.

How do I participate?

If you have a project that improves transportation between more than two communities or that significantly impacts economic development, contact the DOT&PF's Regional Planner for your area. For most of Southwest Alaska, this planner will be in the DOT&PF's Southcoast Region. For the Dillingham area, this planner will be in DOT&PF's Central Region. Additionally, the AMHS has a dedicated planner for their projects.

For more information, visit: http://dot.alaska.gov/stwdplng/cip/stip/index.shtml

FAA: The FAA administers Airport Improvement Program (AIP) from which the state receives 95 percent of the capital funding used for airport projects (Figure 6). The statutes and regulations that establish the program limit expenditures to public use aviation needs and preclude projects to develop revenue-producing and exclusive-use facilities. Any revenue generated by the airport must be spent within the airport system – it cannot be diverted to a community or state general fund.

Figure 6: False Pass Airport

FAA funding is proposed for improvements to False Pass airport, including erosion control, lighting and a new wind sock.

How do I participate?

If you have an idea on an airport improvement that would improve safety, efficiency, or condition, contact the Regional Aviation Planner for your region.

For more information, visit: http://dot.alaska.gov/stwdav/index.shtml

United States Environmental Protection Agency (EPA): The EPA provides funding for environmental concerns such as water and sewer system repairs, new construction for areas without service, and environmental clean-up. They've delegated responsibility for managing these funds to the Alaska Department of Environmental Conservation (DEC). The funding can be either a grant or loan.

How do I participate?

Your first step would be to contact DEC's Village Safe Water or Municipal Grants and Loans programs to determine the program that may work best for your project.

For more information, visit: http://dec.alaska.gov/water/index.htm

Transportation Investment Generating Economic Recovery (TIGER) Grants: TIGER grants are a federal USDOT program of competitive grants that fund projects focusing on safety, innovation, and opportunity. Annual application process is very competitive.

How do I participate?

Keep an eye on the website to determine application dates and to download materials. In the meantime, you should register at Grants.gov. This process can take two to four weeks, and must be completed before submitting a final application. You will be required to get a Data Universal Numbering System (DUNS) number, which is a proprietary 9-digit code that uniquely identifies each business or organization globally – there is no cost associated with getting this number. You'll also need to register with the System for Award Management (SAM), and get a SAMs number. The SAM helps the federal government track information on business and trading partners.

For more information, visit: http://www.transportation.gov/tiger

Fostering Advancements in Shipping and Transportation for the Long-Term Achievement of National Efficiencies (FASTLANE) Grant Program: The FASTLANE program is a new program in the FAST Act to fund critical freight and highway projects across the country. The FAST Act authorizes $800 million in funding for the FASTLANE program for fiscal year 2016, with 25 percent reserved for rural projects, and 10 percent for smaller projects. The FASTLANE grant program provides funding for projects of national or regional significance, which are identified in this plan.

How do I participate?

The program solicits grant applications typically in the spring. The next Notice of Notice Funding Opportunity should be out April 2017.

For more information, visit: https://www.transportation.gov/FASTLANEgrants

FTA: Some of the funding available in the Highway Trust Fund is allocated for transit funding.

How do I participate?

Unlike road funding or airport funding, you are not required to go through the State to receive transit funding. However, the DOT&PF's Transit Planners can help navigate the bureaucracy and determine which programs might work best for your community.

For more information, visit: http://dot.alaska.gov/stwdplng/transit/

Denali Commission: In September 2015, President Obama announced that the Denali Commission will be the lead agency for communities threatened by erosion, flooding, and permafrost. The Denali Commission and its Commissioners are responding to the President's announcement, setting up policies and programs to help threatened communities. This independent federal agency was originally established to work with multiple state and local partners to develop infrastructure that supports communities and economic development. While the earmark establishing the Denali Commission has been eliminated, they still have some monies and provide coordination between agencies.

How do I participate?

If you have a rural transportation project, contact the Senior Program Manager for the Transportation Program. Keep your eye on the website to find out about public meetings that will share information on upcoming programs. A list of commissioners and other staff is on the website.

For more information, visit: https://www.denali.gov/programs#transportation

General Fund (GF): The State's GF may be tapped for transportation projects through legislative action. The legislature may choose to use a special pot of funds that support transportation projects, or they could choose to take funds from the same pot that funds other elements of state government. This funding can be challenging to secure. Decreased oil prices puts pressure on every available dollar and creates competition among agencies. One advantage of GF is that the design and environmental analysis can be faster than if a project is federally funded. For federal programs, participants are required to complete the environmental analysis before moving on to right-of-way (ROW) acquisition or design. If the project is funded with State GF, the environmental process can occur concurrently with the ROW acquisition and design. While the State accepts some risk if an environmental challenge is found, the State may choose to balance that risk with the importance of economic development. GF may be appropriate for a large transportation project that supports significant economic growth and requires a relatively quick design and build. GF can also be appropriate for relatively small transportation projects. Projects that are under $1 million are easier for legislators to fit into budget gaps.

How do I participate?

Contact your legislator's office. They will need support materials (scope, any studies or design) the September before the next regular legislative session, which generally begins in the middle of January. They will want to see some sort of community support, and communities usually provide their legislators with a Capital Improvement Project list before the legislative session.

For more information, visit: http://akleg.gov/index.php

Fish and Game: Fish and Game has some grant monies available to improve power boating and sport fishing access boat launches. These funds cannot be used for projects that primarily support subsistence or commercial operations.

How do I participate?

Contact The Alaska Department of Fish and Game for more details.

http://www.adfg.alaska.gov/index.cfm?adfg=fishingsportboatingangleraccess.main

Municipal Harbor Facility Grant Program: The program's intent is to provide financial assistance to municipal or regional housing authority owned harbor facilities. There is a 50/50 match requirement, and the program is funded annually at the discretion of the Alaska Legislature and consists of two tiers, Tier I and II. Tier I has priority and consists of major maintenance and repair of a harbor facility that was previously owned by the State and now is locally owned. Tier II consists of all other harbor facilities and those harbor facilities which have already received a Tier I grant. A harbor facility may only receive one Tier I grant but is eligible for multiple Tier II grants.

How do I participate?

Contact your regional planner or the Statewide Ports and Harbors Engineer.

For more information, visit: http://dot.alaska.gov/stwddes/desports/harbor_grant.shtml.

Bonding: A government may decide to go into debt to pay for transportation upgrades, depending on the state of the economy, and the debt the government already carries. Governments often hold votes for approval to go into debt for a certain purpose.

How do I participate?

Contact your government representative for more information.

For more information, visit: http://treasury.dor.alaska.gov/ambba/

A community can make participation more attractive to state and federal agencies by contributing community funding. Tribes also have possible sources of funding, through their own revenue generation or through Tribal Transportation funding (see discussions below). Non-profits are sometimes willing to participate if the project will help meet their goals.

Since the 1990s, federal sources have primarily funded transportation in Alaska. A number of issues could impact how that funding is used in the future.

3.2 Planning Considerations/Issues

Since the 2004 SWATP update, policies and conditions impacting transportation development in Alaska have changed. By documenting these changes, stakeholders can understand the new constraints impacting this plan. It will also help future planners understand when issues that have shaped transportation decisions have changed, and when reviewing the proposed projects may be warranted.

3.2.1 Freight Funding

Budget agreements made late in 2015 show evidence that the USDOT is focused on making the movement of freight a priority for the United States. The President signed a five-year funding bill on December 4, 2015. The bill includes the following two new areas for freight funding:

- National Highway Freight Program: approximately $1.2 billion annually; and
- Nationally-Significant Freight & Highways Projects Program: approximately $900 million annually.

Figure 7: Naknek Dock

Equipment stands quiet on a fall day after the fishing season has ended. Naknek landed 165 million pounds in the 2012-2013 commercial fishery season, worth $167 million (NOAA, 2010-2013).

This program, proposed for Federal Fiscal Year (FFY) 2016-2021, will focus on large-scale projects of national or regional importance. Freight projects in rural Alaska will be eligible for funding through a competitive grant process called the FASTLANE grant program. (Funding information on how you can participate is on page 20). Southwest Alaska freight transport is highly dependent on marine services and capabilities (Figure 7), and federal funding may be available for Southwest Alaska. AMHS provides freight delivery for residents in Southwest Alaska, delivering vehicles, passengers, and cargo such as food or basic goods purchased in Anchorage or Seattle. The Southwest Alaska region includes 40 communities that are not connected to the NHS through the ferry system. Residents living in these communities

receive their daily goods, fuel, food, vehicles, building supplies, and other domestic goods via barge delivery or air transport.

3.2.2 Arctic Development

Arctic industries use the Ports of Unalaska and Dutch Harbor to position, stage, and store equipment and supplies while they wait for the approximate four-month window of ice-free conditions necessary for their operations. Arctic development projects include mining, oil and gas exploration and drilling, port infrastructure, and transportation of freight and passengers. Arctic development particularly impacts Dutch Harbor.

- Fuel for communities north of Unalaska is stored at Dutch Harbor.
- Northbound cargo passes through Dutch Harbor.
- Dutch Harbor provides staging for oil and gas exploration and support vessels.
- Mining companies have expressed an interest in staging materials and supplies in Dutch Harbor.

3.2.3 United States Earmark Ban and Impacts on the Denali Commission

An earmark is a legislative provision that directs approved funding toward specific projects (Merriam-Webster, 2015). Alaska received more than 189 earmarks, worth approximately $1 billion, between FFY 2005 and 2010 (Executive Office of the President, Office of Management and Budget [OMB], 2011). In 2012, the U.S. Congress voted to ban earmarks and passed a budget guiding spending into 2015, including $63 billion in budget cuts. One of the earmark programs cut that had a significant impact on Alaska was the Denali Commission.

The Denali Commission's Transportation Program was originally created in 2005 as part of the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation and accompanying amendments to the Denali Commission Act of 1998 (as amended).

The program included two major components, rural roads and waterfront development, as outlined below:

1. The roads portion of the program targeted the planning, design, and construction of basic road improvement needs. Projects focused on connecting rural communities to one another and the state highway system and enhancing rural economic development. Eligible road projects included local community road and street improvements and roads to subsistence use sites. Roads built of wood were an option for communities where traditional roads were impractical to build.

2. The waterfront portion of the program addressed planning, design and construction of port, harbor and other rural waterfront needs. Eligible project types included regional ports, barge landings and docking facilities.

SAFETEA-LU expired in 2009 and operated under a continuing resolution from June 2009 through June 2012.

In late June 2012, Congress passed a two-year transportation bill, MAP-21, that did not include authorization or funding for the Denali Commission's transportation program.

The Denali Commission, in partnership with the stakeholders listed in Section 1.3, invested approximately $1 billion dollars in transportation infrastructure between 2005 and 2012 (Figure 8).

3.2.4 Moving Ahead for Progress in the 21st Century (MAP-21)

President Obama signed MAP-21, the new highway bill, into law on July 6, 2012. MAP-21 focused on setting national performance goals, which require states to focus FHWA funding on the NHS. MAP-21 consolidated the number of federal programs by two-thirds, from about 90 programs to less than 30, to focus resources on key national goals. This focus eliminated funding for earmark programs such as the Denali Commission's Transportation Program and eliminated the Bureau of Indian Affairs Indian Reservation Roads (IRR) High Priority Program (HPP). Where IRR used to distribute funds based on road inventory, funds are now largely dependent on tribal population. Tribes over 10,000 split 25 percent of available funds, and tribes over 1,000 split 60 percent of the funds. The remaining 15 percent is split between tribes with fewer than 1,000 members. Southwest Alaska's population is in large part Alaska Native, with 32 percent identifying as American Indian or Alaska Native (Alaska Department of Labor and Workforce Development [DOLWD], 2012).

Figure 8: Nondalton

Among the projects that the Denali Commission funded was a dock and landing for Nondalton, a community along Sixmile Lake.

MAP-21 focuses funding on the NHS (Figure 9). Only the Southwest communities that receive ferry service are connected to the NHS. Figure 9 shows the NHS connection to Homer on Alaska's Kenai Peninsula. Homer provides the closest link to the contiguous-land-based NHS for residents of Southwest Alaska. The dashed lines on this map show routes for communities served by the AMHS.

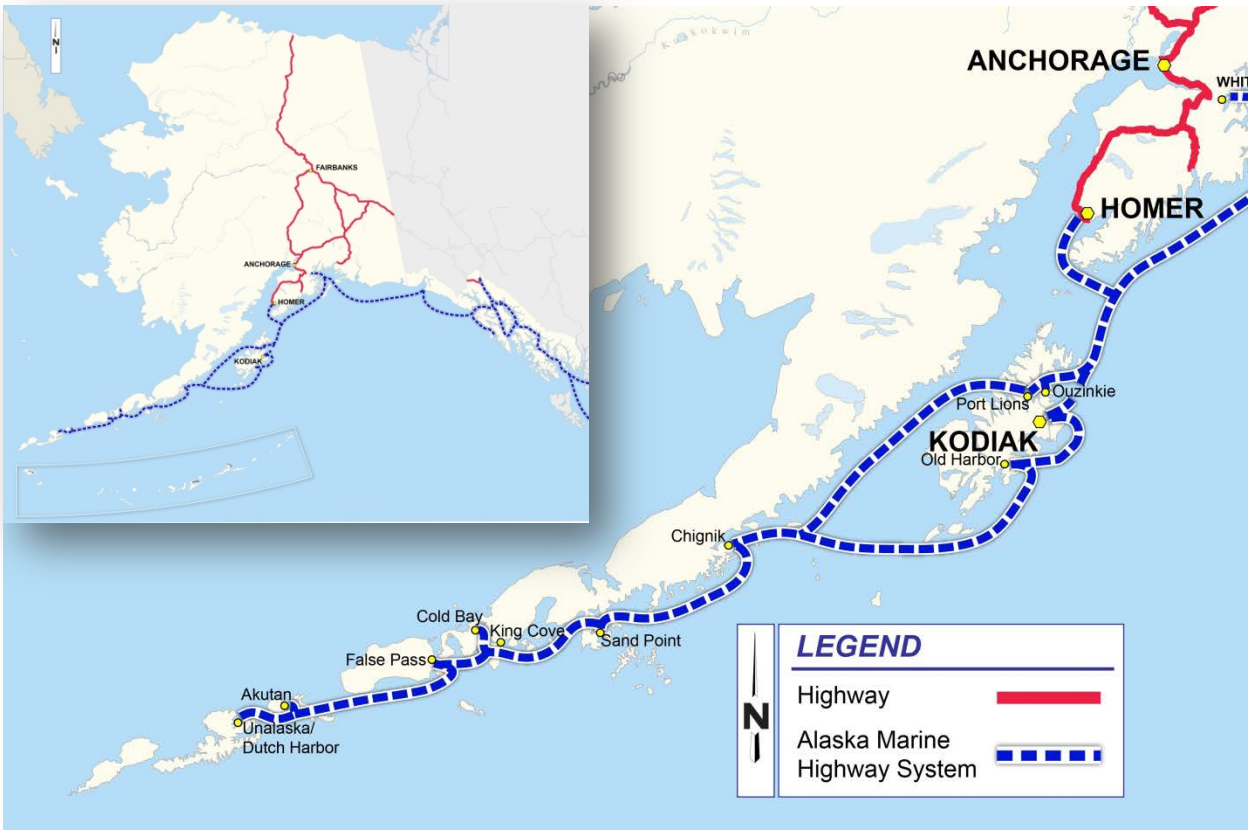


Figure 9: The National Highway System in Alaska

Southwest Alaska is connected to the statewide National Highway System (inset) through the Alaska Marine Highway System port in Homer.

3.2.5 The Federal Aviation Administration Budget Cuts and Shifts

The FAA has experienced budget cuts and has shifted their investment priorities to rural access and pavement maintenance programs, and FAA funding for airport construction. In recent years, the FAA has required that a large share of the federal AIP funds nationwide be spent to expand runway safety areas (RSAs), and be used to resurface or reconstruct deteriorating paved airport surfaces at Regional Class airports. For example, Regional Class airports such as Cold Bay, Dillingham, Iliamna, King Salmon, Kodiak, and Unalaska have seen significant recent expenditures to address RSAs and pavement condition, though a considerable amount of work remains at several of these airports. Congress has mandated improvement of safety areas at FAR Part 139 certificated airports and busier airports, by 2015. Other federal programs that support vital aviation services may be reduced or changed during the time frame of this plan, including Bypass Mail or Essential Air Service. Medical transport services may be impacted by cuts to the Indian Health Service or Medicare.

3.2.6 Price of Oil Drops Significantly

The price of oil in 2015 was an average of $53 a barrel according to the United States Energy Information Administration (December 2015) and is anticipated to remain at that level for a few years. Even after recovery, the State's funding shortfall will have resulted in reduced infrastructure repair, and exacerbating maintenance challenges.

DOT&PF depends on undesignated general funds (UGF), funded primarily through oil revenue, for 40 percent of their total operating budget in 2016, for a total of $247 million. For comparison, Health and Social Services, the University of Alaska system, and Corrections use more UGF, at $368 million, $356 million and $281 million respectively (State of Alaska, Office of the Governor, 2015a).

The AMHS fares collected do not cover costs to operate. The AMHS's operating budget is $145 million in FFY2016. $97 million (62 per cent) of their budget is dependent on UGF, and

$48 million is recovered from fares. In comparison, Southcoast Region road and airport maintenance will require $20 million, or 21 percent of the amount needed to operate the AMHS (State of Alaska, Office of the Governor, 2015a and 2015b). This disparity attracts political attention when budgets are tight (Figure 10).

3.2.7 Fuel Prices

All fuel and freight is either flown or barged in to Southwest Alaska. Shipping origin determines fuel prices and shipping is often from Seattle, Washington. The more isolated the community, the more expensive the fuel is. Barge operators also charge the community based on operational tasks associated with delivering fuel, such as transferring the fuel from the barge to the fuel header, and the number of stops a barge has to make in one community. Because fuel is shipped and stored, a community will generally pay the same price for fuel all winter, regardless if the price rises or falls in the rest of the state.

The high cost of living in rural Alaska negatively affects community sustainability and reduces the funds available for travel. As noted in the Phase 1 Report, additional studies are warranted to document if fuel costs can be reduced through infrastructure improvements, and if those

Figure 10: Alaska's Capitol Building, Juneau, AK

The legislative session begins in January. Senators, Representatives, and the State's administrative officers develop budgets that address the sharp downturn in oil prices, which has impacted the State's budget.

reduced costs would be passed on to the customer.

Although fuel prices are going down nation-wide, they remain relatively high in rural Alaska. For example, in January 2015 the price of a gallon of gasoline in Anchorage, Alaska was $2.89. The price in Dillingham, Alaska was $6.71. While decreasing oil prices (discussed above) reduce fuel costs, it also reduces funds available for state provisions such as education (McBride, 2015).

Aviation is the main year-round mode of transportation in the Southwest Alaska, and is also an expensive option for the traveler, in part due to fuel prices (Sharp, 2012). Residents travel back and forth between communities and Anchorage to access jobs, health care, education, and other public facilities. A round trip ticket between Anchorage and Dillingham was approximately $400 dollars during the summer of 2015.

3.2.8 Pebble Mine

The Pebble Mine Project (Pebble) is a copper-gold-molybdenum porphyry deposit in the advanced exploration stage. The project is located on State land in the Bristol Bay Region of Southwest Alaska, approximately 17 miles northwest of the community of Iliamna. Pebble consists of two contiguous deposits. Pebble West is a near surface resource of approximately 4.1 billion metric tons. Pebble East is significantly deeper than Pebble West and contains an estimated resource at 3.4 billion metric tons (Alaska Department of Natural Resources [DNR], 2015). The project is currently on hold as the Pebble Limited Partnership (PLP) reviews its options for advancing the project further. PLP's eventual development of an optimum project plan would outline an opening position for transportation routes. If PLP advances to develop an optimum project plan, review of this document should be revisited, and a subarea plan considered.

3.2.9 DOT&PF Boundary Changes

DOT&PF is organized into three regions (Central, Northern, and Southcoast), a statewide headquarters, and a section for AMHS. The Alaska Railroad is a separate corporation in the State of Alaska. In fall 2014, the department changed boundaries to expand the Southeast Region to encompass additional areas of Southwest and coastal Alaska, and and renamed it the Southcoast Region (Figure 11). With the new boundary changes, Central Region is responsible for the Matanuska Susitna Borough, the Kenai Peninsula the Municipality of Anchorage, and locations along the Kuskokwim River. Southcoast Region oversees the remainder of Southwest Alaska, the Aleutian Islands, Kodiak, Island, and Southeast Alaska. The shift provides the opportunity for the regions to have better coordination, operational and planning expertise, and to further carry out the successful implementation of projects in Southwest Alaska.

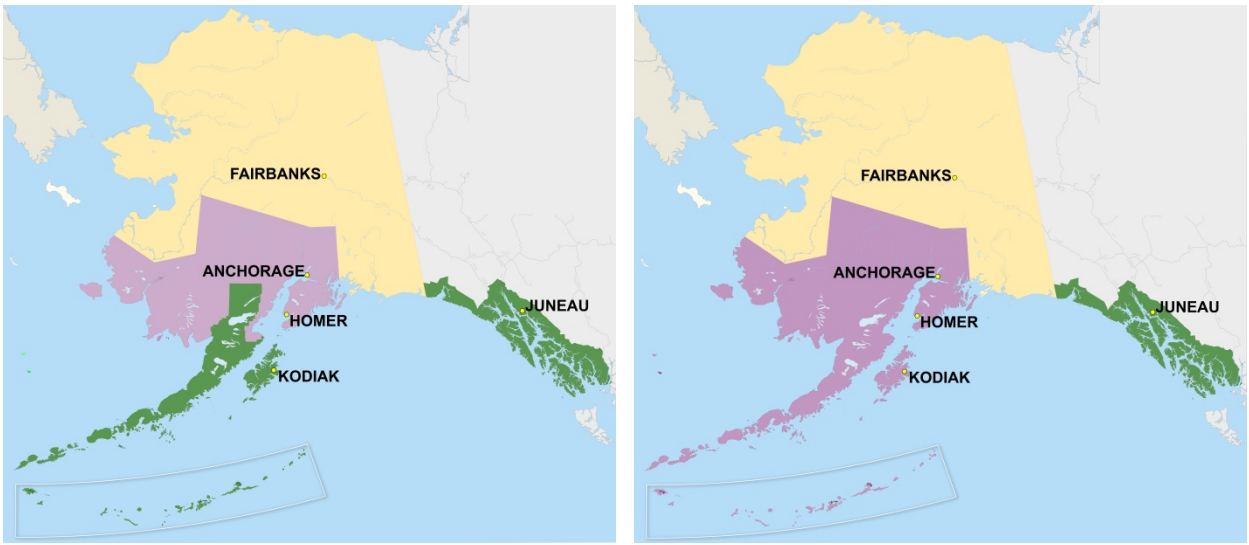


Figure 11: DOT&PF Regional Boundary Revisions

The new regional boundaries are shown on the left, with the new Southcoast Region having responsibility for Kodiak, the Alaska Peninsula and the Aleutian Chain. This area used to be the responsibility of Central Region (right).

3.2.10 Essential Air Service Changes

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 USDOT to establish a minimum level of scheduled air service to rural communities which would otherwise have lost service through changes in air carrier profitability after deregulation. This program is controversial and often debated in Congress. Some feel the subsidies are not necessary in contiguous United States communities with other transportation modes available. The program has generally been supported in Alaska and Hawaii because of isolation and lack of alternative systems of transportation such as roadways.

Subsidized EAS routes are available for bid by certified air carriers, which are selected according to service reliability and arrangements with other airlines at the connecting hubs. Community desires are also considered when selecting a carrier. Contracts are awarded for a two-year period, and designate routing, frequency of service, aircraft type, and subsidy rate. Air carriers receiving these subsidies must provide 90 days prior notice before discontinuing service to an airport, allowing time for alternative service to be found. Currently, 49 communities in Alaska receive EAS subsidies for air service, and air carriers providing that service receive an aggregate amount of $15,510,296 per year from these subsidies (USDOT, October 2015). Six of these Alaska airports receive subsidized jet service, and those six airports receive 63 percent of the total Alaska subsidy, for a total of $9,896,767. The Statewide Aviation Planner notes that more EAS sites are in the process of being added to the Southwest area, but at this time they are not far enough along in the process to be counted in the data (Rauf, 2015). As of October 2015, 18 of the communities receiving EAS subsidies, or 37 percent, are in Southwest Alaska. They receive $2,874,838, or 19 percent of available EAS funding.

Recent changes to the EAS program have banned any new communities from entering the program. However, communities in Alaska and Hawaii that are more than 175 driving miles from the nearest large or medium National Plan of Integrated Airport Systems (NPIAS) hub airport are exempt from this change.

What is a NPIAS hub?

Note that the National Plan of Integrated Airport Systems defines hubs based on the number of passenger boardings each year. By the NPIAS definition, there are only three hubs in Alaska: Anchorage is a medium hub, and Fairbanks and Juneau are small hubs.

3.2.11 Bypass Mail Program

The Alaska Bypass Mail program was established in 1972 to ease demand on Alaska postal facilities running over capacity. The program allows parcel post mail to be shipped to rural Alaska communities directly through private shippers and/or the authorized, certified air carriers serving those communities, bypassing any handling by the U.S. Postal Service. The difference between U.S. parcel post rates and the air carriers' air freight rates are paid by the U.S. Postal Service. The program reduces the need for and cost of additional U.S. Postal Service employees and facilities. Shipping time is shortened because of reduced handling. Consequently, the Alaska Bypass Mail program both increases costs and reduces costs for the U.S. Postal Service, with a net loss. The funding airlines receive from the Alaska Bypass Mail program helps them control operational costs and provide less expensive fares to passengers. Some carriers have suggested that the Alaska Bypass Mail program subsidizes public assistance programs by making travel to and from health care facilities less expensive, thereby increasing public benefit (Figure 12).

Figure 12: Kokhanok

Kokhanok is one of the Iliamna Lake communities served by the Alaska Bypass Mail program.

Because shipment of these goods are, in a sense, "subsidized" by the U.S. Postal Service, air carriers get additional revenue. They are more able to provide service for passengers and goods between participating 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. Additional passenger service to small rural Alaska airports is a benefit of the program. Purchasers of goods shipped at the cheaper rates also benefit from this program.

Items shipped through the Alaska 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 Alaska Bypass Mail include hazardous substances and building materials.

There are currently 16 bypass mail hubs that serve over 100 destination airports in rural Alaska. Within Southwest Alaska, bypass mail originates from 5 postal hubs – Cold Bay (4 destination airports), Dilllingham (8 destination airports), Iliamna (4 destination airports), King Salmon (4 destination airports), Togiak (I destination airport), and Port Heiden (4 destination airports). Table 1 shows the current bypass mail hubs in the planning area and the associated destination airports.

Table 1: Current Bypass Mail Hub and Destination Airports in Southwest Alaska

COLD BAY	**ILIAMNA**
False Pass	Kokhanok
King Cove	Nondalton
Nelson Lagoon	Pedro Bay
Port Moller	Port Alsworth
DILLINGHAM	**KING SALMON**
Aleknagik	Egegik
Clarks Point	Levelock
Ekwok	Pilot Point
Koliganek	South Naknek
Manokotak	
New Stuyahok	**PORT HEIDEN**
Twin Hills	Chignik
	Chignik Lagoon
TOGIAK	Chignik Lake
Quinhagak	Perryville

NOTE: (Hubs in bold)
Source: U.S. Postal Service, 2012; Lockmann, 2015

The Rural Service Improvement Act of 2002 was the last major legislative change to the Alaska Bypass Mail program. This act greatly improved the safety and efficiency of air service to rural Alaska communities. Minimum qualifications and service frequencies were established for air carriers handling bypass mail, improving service to the communities. In addition, more stringent qualifications reduced the number of carriers qualified for inclusion in the program, in turn reducing competition and improving the health of the qualified carriers.

Concerns about government efficiency and large budget deficits within the U.S. Postal Service have made the high cost Alaska Bypass Mail program a controversial subject in Congress in recent years. In addition to possible legislative and funding changes, the U.S. Postal Service in Alaska is considering the addition of new bypass mail hubs to the system, with route changes to accommodate the new hubs. Any bypass mail hub and route changes will likely be

followed by all air service to those rural Alaska communities receiving bypass mail service changes.

Should the Alaska Bypass Mail program be reduced or eliminated, communities in the planning area now receiving the benefit of improved air service through the Bypass Mail program may be eligible for Essential Air Service subsidies through the USDOT to preserve a minimum level of air service.

The Alaska Bypass Mail and Essential Air Service programs have received increased budgetary scrutiny at the federal level. While there is recognition that Alaska has a unique dependency on aviation and needs special federal support, budgetary pressures may eventually cause reductions to these programs.

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4.0 EXISTING CONDITIONS

Southwest Alaska is a largely maritime region with some of the most productive fishing grounds in the world - Bristol Bay, the Bering Sea, and the Gulf of Alaska. The fishing industry is the basis for a significant portion of the regional economy. Southwest Alaska was home to three of the nation's top five fishing ports in 2010, 2011, and 2012, bringing in $392 million, $489 million, and $503 million in fish products, respectively. In 2013, the region held four of the top five slots nationwide. The ports of Dutch Harbor, Kodiak, Aleutian Islands Other (Adak, Akutan, Atka Island, False Pass), Bristol Bay Other (Dillingham [Figure 13], Egegik, Ekuk, Saint George Island, Saint Paul Island and Togiak), and Naknek (Figure 14) brought in a total value of $558 million in fish value (National Oceanic and Atmospheric Administration [NOAA], 2010-2013). Protecting the resource is a priority, as is developing and maintaining transportation infrastructure that supports the industry.

Figure 13: Dillingham Small Boat Harbor during Fishing Season

Dillingham is one of the Southwest Alaska communities helping to make Southwest Alaska nationally competitive in commercial fishing markets. Photo credit: Julianne Baltar.

Figure 14: Fishing Boats in Naknek

Naknek King Salmon has been in the top five ports nationally for value of catch since 2010.

The Southwest area's population peaked in 1990s, and has seen a decline since. There are currently almost 30,000 people living in the area. Over the next 20 years, a one percent per year decline in the Southwest area population is expected. The Aleutians East Borough and Dillingham Census Area are anticipated to grow over the term of this study. Kodiak will maintain its population. The populations of the Aleutians West Census Area, the Bristol Bay Borough, and the Lake and Peninsula Borough are anticipated to decline (Alaska Department of Labor and Workforce Development [DOLWD], 2010). For more information on population and trends, see the Phase 1 Report.

4.1 Aviation

Aviation and marine transportation provide most of the transportation to and from communities in the region. Roads provide access within communities and to aviation and marine transportation facilities. Regional Class airports include Cold Bay, Dillingham, Iliamna, King Salmon, Kodiak, and Unalaska Airports, all owned and operated by the State of Alaska. These Regional Class airports connect air service to 53 smaller airports in the region. 22 seaplane bases in the region are also registered with the FAA.

The Alaska DOT&PF and FAA's funding investment in this region over the past 30 years has significantly improved Alaska aviation system. Comparing the changes to average runway length and runway surface are two ways to recognize progress in the region. Average runway length increased for the Regional and Community Classes, but declined for the Local Class. All of the Regional Airports, except for Iliamna, have runways that are now over 6,000 feet long. Airports in the Community Class increased in runway length by an average of over 500 feet during that time period (Appendix C).

The percent of runways in Southwest Alaska that are paved increased from 13 percent in 1985 to 28 percent in 2014. All six of Southwest Alaska's Regional Airports are now paved – Unalaska and Iliamna formerly were gravel. Four Community Class airports (Akutan, Sand Point, Saint George, and Saint Paul) are now paved and one Local Class airport (Kodiak Municipal) has been paved.

DOT&PF has established a runway length goal of 3,300 feet for Community Airports, where practical. From 1985 to 2014, DOT&PF extended many airports across Alaska, and Southwest Alaska has particularly benefited from this standard. In 1985 only 10 Community and Local Class Airports were 3,000 feet or longer. By 2014, 27 airports are at least 3,000 feet long. Appendix D illustrates airports over 3,000 feet. While the State standard remains 3,300 feet, some airports cannot meet that standard due to cost, terrain, or other local conditions.

The largest runway length increases were at Ekwok, Kokhanok, Nelson Lagoon, Pedro Bay, Saint Paul, and Sand Point. A new airport was built in Akutan. The largest runway length decreases were at King Cove, Naknek, Port Heiden, and Togiak (Appendix E). Natural events, like erosion, can result in shorter runway length. Other factors include the need to move runway thresholds, to increase runway safety areas or address obstructions in the runway approach.

4.2 Non-AMHS Marine

Marine service capabilities include 22 harbors in the region and five deep draft docks. While the fishing industry use of the area is expected to remain stable, use of marine facilities by oil and gas exploration companies may require changes to facilities or additional repair and emergency response capability (DOT&PF, 2014).

For the purposes of this report, this analysis is divided between non-AMHS marine services and AMHS services.

Non-AMHS marine analysis is divided into the following:

- Regional conditions
- Regional operations
- Marine hub facilities

4.2.1 Regional Conditions

Freight movement in Southwest Alaska is highly dependent on marine services. Freight is shipped from Seattle/Tacoma to Anchorage, Kodiak, or Unalaska. Once the barges reach these main ports, freight is typically transferred to smaller barges and shipped to secondary ports or harbors located up river or along the coastlines in the region.

In addition to Unalaska and Kodiak, Dillingham also serves as a distribution port for other Southwest Alaska communities. Unlike Unalaska and Kodiak, Dillingham does not receive direct freight service from Seattle/Tacoma. Other ports or harbors in the region may be regionally significant or nationally important, but do not generally serve as distribution ports.

4.2.2 Regional Operations

The barge companies listed below strategically split the delivery effort with other businesses to provide communities located along the river with barge service. Some of the larger barge companies serving the Southwest Alaska area include the following.

Matson (previously Horizon Lines; Matson, 2015)

- Services Anchorage, Kodiak, and Dutch Harbor (Unalaska).
- Sails twice weekly, consistent day-of-the-week service between Tacoma, Anchorage, and Kodiak.
- Provides weekly service between Tacoma and Dutch Harbor (Unalaska).
- Provides truck, rail, and barge service connections throughout Central Alaska, Kodiak, and the Aleutian Chain.
- Provides a full range of equipment including dry and refrigerated containers, open top containers, car carriers, flatracks, and insulated containers.
- Expertise in supporting Alaska's seafood industry.

Vitus Marine (Anderson, 2015)

- Services Aleutian Islands, Arctic Circle and inland on rivers such as the Kobuk, Nushagak, Kuskokwim, Kvichak, and Yukon Rivers.
- Typically will load customer's freight in Dutch Harbor (Unalaska), Dillingham, Bethel, or Nome and deliver to any number of smaller locations.
- Can be chartered to move a customer's freight to between almost any two ports in Western Alaska including combining fuel and freight.

- Provides bulk fuel deliveries to Dutch Harbor (Unalaska), Dillingham, Naknek, Bethel, and Nome. Vitus Marine has supply sources through the Pacific Ocean including Washington, Cook Inlet Alaska, Russia, South Korea, and Singapore.
- Partnered with Alaska Village Electric Cooperative (AVEC) which services fuel to fifty-six communities in Western and Interior Alaska. AVEC funded the construction and leased its initial flagships, two articulating tug and barge vessels to Vitus for the faster, safer fuel delivery to their villages.
- Owns and operate six barges and three landing crafts.
- Derives 85 percent of its revenue from marine fuel delivery.

Samson Tug and Barge (Barge, 2015)

- Alaska service area includes Cordova, Valdez, Seward, Kodiak, King Cove, Dutch Harbor (Unalaska), Anchorage, Fairbanks, Kenai Peninsula, and Prudhoe Bay.
- Services Larsen Bay every summer and provides service to Adak and Atka as needed.
- Sails from Seattle to the above mentioned communities bi-weekly.
- Owns and operates three sets of tugs and barges which move every day in Western Alaska year round.
- Seafood is a major item that Samson helps deliver. Seafood is either delivered to Dutch Harbor (Unalaska) and exported to foreign ports, or it is delivered to Seattle for transportation oversees or to the Lower 48.

Cook Inlet Tug and Barge

- Services Cook Inlet, Prince William Sound, Kodiak, Dutch Harbor (Unalaska), and Puget Sound.

- Owns and operates two tractor tugs that run year round and aid ships and ocean barges with ice escorting during the winter months. The fleet also includes conventional tugs as well as flat deck barges with and without ramps. The company's barges mobilize and demobilize equipment and vehicles, most often tractor trailers, drilling equipment, and supplies.

4.2.3 Marine Hub Facilities

Unalaska

Unalaska is home to the International Port of Dutch Harbor (Port, Figure 15). The Port is a deep-draft; ice-free port strategically located in the Aleutian Islands. It is the only Port of Refuge in the Aleutians and the entire west coast of Alaska, a designation that requires procedures for tracking ships in distress and accepting them into port, and includes elements from customs clearances to health certifications. This designation is issued through the United States Coast Guard (USCG) and the DEC. Dutch Harbor provides direct access to international shipping lanes.

Each year, the Unalaska Marine Center (UMC) welcomes approximately 732 vessels. These include Coast Guard cutters, research vessels, container ships, catcher processors, fuel tankers, fuel and cargo barges, AMHS ferries, and cruise ships. More than one billion pounds of cargo, 65,000 cargo containers, and 12 million gallons of fuel transfer across the UMC dock every year.

The Port is the number one commercial fishing port in the U.S. for poundage. Millions of dollars are generated in raw fish tax from Unalaska, as well as marine fuel taxes generated by the sale of approximately 60 percent of the State's marine fuel. (City of Unalaska, 2015; McLaughlin, 2015).

Appendix F includes a map of Unalaska facilities.

Figure 15: Dutch Harbor

Dutch Harbor, in Unalaska, imported and exported ~1,382,000 short tons in 2012 (Meyers, 2014). A short ton is 2,000 pounds.

The City of Unalaska maintains the community's marine facilities:

- UMC and the USCG Dock: These facilities include 2,051 linear feet of dock face, with 40' depth at mean lower low water (MLLW). The facility accepts containerized general cargo, ferries, and fuel vessels. 30-ton and 40-ton cranes and a rail system are available to move containerized cargo and are operated by Horizon Lines. Fueling is provided by North Pacific fuel. Potable water, warehouse space, sewage pump-out, and uplands storage areas are available (City of Unalaska, 2015).
- Light Cargo Dock: This dock provides 340 linear feet of dock face with 25 feet MLLW at the north side of the dock, shallowing to 20 MLLW at the south end. Breasting dolphins are located at either side of the sheet pile dock. Shore power, potable water, and upland storage are available (City of Unalaska, 2015).
- Spit Dock Facility: This facility provides multiple long- and short-term moorage for vessels up to 200 feet in length. Shore-power, refuse removal, and potable water are provided (City of Unalaska, 2015).
- Robert Storrs Small Boat Harbor: This harbor has 71 slips, and spaces for vessels up to 60 feet. Both long term moorage and transient slips are available. Potable water, shore-power, refuse removal, and waste oil disposal are provided (City of Unalaska, 2015).
- Carl E. Moses Small Boat Harbor Facility: This harbor has 52 slips for vessels up to 150 feet long. Both long term moorage and transient slips are available. Potable water, shore power, waste oil disposal, refuse removal, and restrooms and showers are provided. There is also a drive-down floating dock available with a shore side crane. The crane has a 2,500 pound lifting capacity (City of Unalaska, 2015).

The Port is located at the crossroads of the North Pacific. It lies on the Great Circle Route, which welcomes more than 4,500 transits of Panamax-size vessels or larger each year. Panamax vessels follow the size regulations set by the Panama Canal Authority. A Panamax vessel cannot be longer than 965 feet, or wider than 106 feet. Draft is not more than 39.5 ft. These vessels have an average capacity of 65,000 Dead Weight Tonnage, and are primarily used in transporting coal, crude oil and petroleum products (Maritime Connector, 2015).

Kodiak

The City of Kodiak owns, operates and maintains all public port, harbor and shipyard facilities within the City of Kodiak, including three deep draft port terminals, two boat harbors with over 30,000 linier feet of moorage and a shipyard with 660 ton Travelift. Kodiak facilities are ice free year round.

Appendix G includes a map of Kodiak facilities.

Port Facilities include:

- Pier III Container Terminal: This 500ft long pier includes a breasting dolphin that is 950 feet long from bollard to bollard. The depth is 45 feet at MLLW. This facility was completed in 2016 and accommodates the next generation of container ships serving Alaska. Pier III is one of three deep draft container terminals in the state. The facility includes six acres of upland container storage and a 100 gauge container gantry crane. The primary user is Matson.
- Pier II, Fisherman's Terminal (City Dock): This 1,050 foot long pier provides 38 foot depth at MLLW. This multi-use deep draft facility serves AMHS vessels, cruise ships, government vessels, freight vessels and barges, and Kodiak's large commercial fishing fleet. Amenities include potable water, garbage reception, used oil and bilge waste reception, three acres of upland storage and a 20,000 square foot warehouse.

- Pier I, Ferry Terminal: This pier is 230ft long, and provides 26.6 foot depth at MLLW. Kodiak's ferry terminal replacement is scheduled for completion in June 2016. AMHS uses the dock for transfer of passengers, vehicles and commercial freight containers. Petro Marine Services transfers bulk fuel at the facility. Commercial fishing vessels and catcher processors load and unload ship supplies and commercial fish product. Amenities include potable water and garbage reception.

Harbor Facilities:

Kodiak has two harbors (Figure 16) and a transient float with 30,000 linier feet of combined moorage space. Amenities include potable water, 440 volt three phase shore power, public restrooms, launch ramps, tidal grid, and garbage and used oil disposal.

Figure 16: Kodiak's Near Island Harbor

In 2012, Kodiak imported and exported 213,000 short tons. (Meyers, 2014).

- St Paul Harbor (Downtown) has 250 slips for vessels up to 60 feet long.
    - Oscars Dock is 242 feet long and 40 feet wide, with 18 foot depth at MLLW. This dock is used for vessels up to 120 feet long, primarily for loading, unloading and vessel maintenance.
    - Dock 1 is 180 feet long and 40 feet wide, with 15 feet of depth at MLLW. This dock is used for vessels up to 90 feet long, primarily for loading, unloading and vessel maintenance.

- St Herman Harbor (Near Island) has 350 slips for vessel up to 220 feet long. This harbor has the largest capacity for vessels 90 feet long and over in the State of Alaska.
- Channel Transient Float (City Float) has 800 linier feet of moorage, and accommodates vessels up to 120ft.

Shipyard/660 Ton Travelift:

The Kodiak Shipyard was built in 2009. The facility includes a heated wash pad and water recycling system. Uplands accommodate six vessels up to 180 feet long, with plans for additional uplands development. The 660 ton Travelift accommodates vessels up to 180 feet long and 42 feet wide (White, 2016).

Dillingham

The Port of Dillingham (Figure 17) is a regional port for many communities in Southwest Alaska. The port provides marine services for commercial fishing, cargo, and recreational vessels. The dock is a major staging area for the salmon-rich Bristol Bay fisheries. The facilities are owned, operated, and maintained by the City of Dillingham.

Figure 17: Dillingham Waterfront

In 2012, Dillingham imported and exported 17,000 short tons (Meyers, 2014). Photo credit: Randy Romenesco.

Dillingham facilities include:

- The main freight dock consists of two docks: The old 'T' dock that has 200 feet of docking face and a new dock that has over 300 feet of docking face.
- Maintenance capabilities: Available marine repair services can address most deck, hull, engine, radar gyro, hydraulic, electrical, refrigeration, marine surveyors, and marine electronic repairs.
- Small boat harbor: This harbor is the only protected harbor in Bristol Bay. It provides residents and fisherman in the region with safe mooring for over 400 Bristol Bay gillnetters and set netters.
- Other services offered include potable water, waste oil disposal, refuse disposal, and crane service for the fleet and an ice machine for ice sales.

4.3 Alaska Marine Highway System

The AMHS provides transportation between 11 communities on Kodiak Island, the southern Alaska Peninsula, and eastern Aleutian Islands. Docking facilities are owned by municipalities or private entities. This system connects the region with the rest of the state and the NHS.

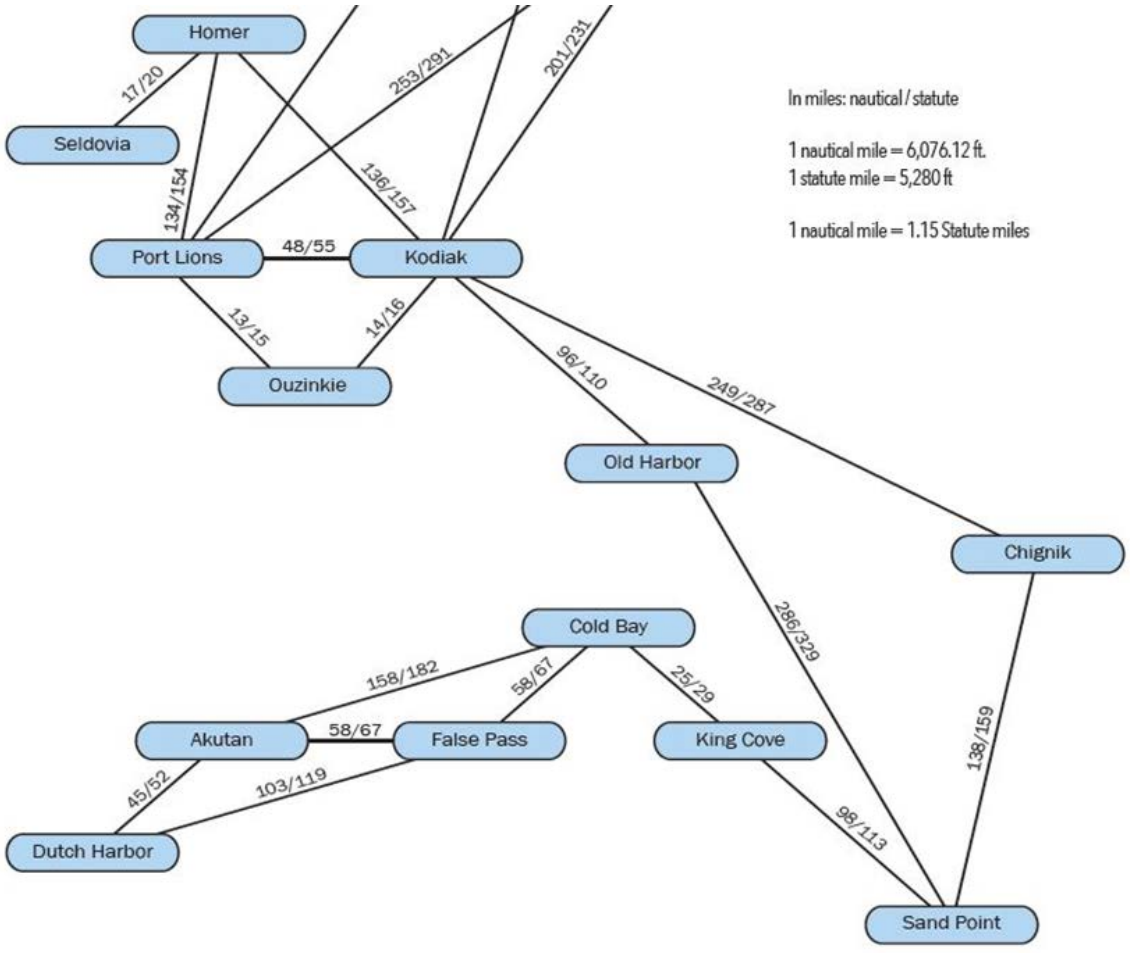


Figure 18: AMHS Routing, 2015

This schematic shows Southwest Alaska service, including links with Homer and Seldovia.

The AMHS serves the area with two ferries, the *Tustumena* and *Kennicott*[2], using docking facilities owned by municipalities or private entities. The *Tustumena* makes seasonal (May to September) trips every two weeks through the area to Unalaska, and runs a continuous circuit between Homer, Seldovia, Kodiak, Ouzinkie, and Port Lions while not operating in the west. During the winter she runs a continuous circuit for Kodiak, Ouzinkie, Port Lions, Seldovia, and Homer. She also makes several Cross-Gulf trips when the *Kennicott* is not available, generally in the winter when the *Kennicott* is supporting the legislative transport mission to Juneau. While there is interest in expanding ferry service in the study area, fleet limitations and costs are significant challenges to expansion. Figure 18 describes current AMHS routes in Southwest Alaska, including Homer and Seldovia.

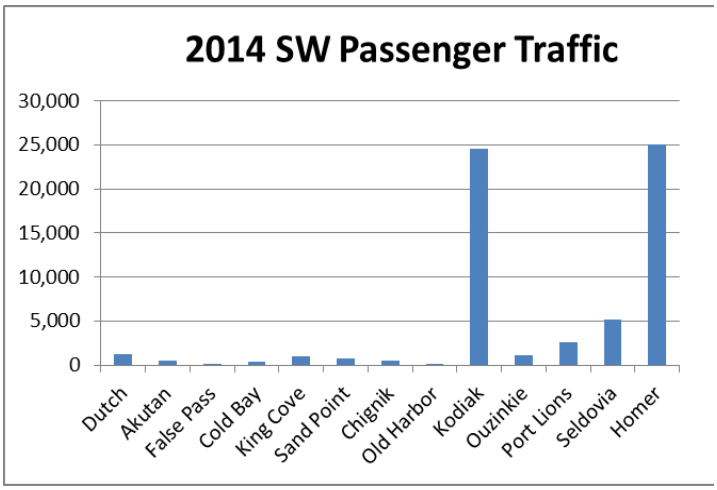


Figure 19: 2014 Southwest Alaska Traffic

2014 is indicative of other years with exception of 2013 when Tustumena was out of service. Note that "Dutch" is Dutch Harbor/Unalaska.

Link volume is used to establish a measure of capacity used, relative to the capacity provided (Figure 19). Figure 20 shows the percent used to the different southwest communities. A "link" is defined as a departure from one port and an arrival at the next. A complete trip usually consists of several links. For example, a passenger or vehicle going from Kodiak to Sand Point in one trip would typically travel on two links; "Kodiak to Chignik" and "Chignik to Sand Point." This passenger or vehicle

[2] The *Tustumena* is one of two AMHS ferries certificated for ocean service. The other is the *Kennicott* serving Southeast and Cross-Gulf routes. Thus their schedules must be meshed when overhauls, layups, or federal capital improvement projects take them out of revenue service.

would be counted as one on each of these links. Consequently, the link volume count includes both the through-traffic and the traffic embarking from the first port in the link pair.

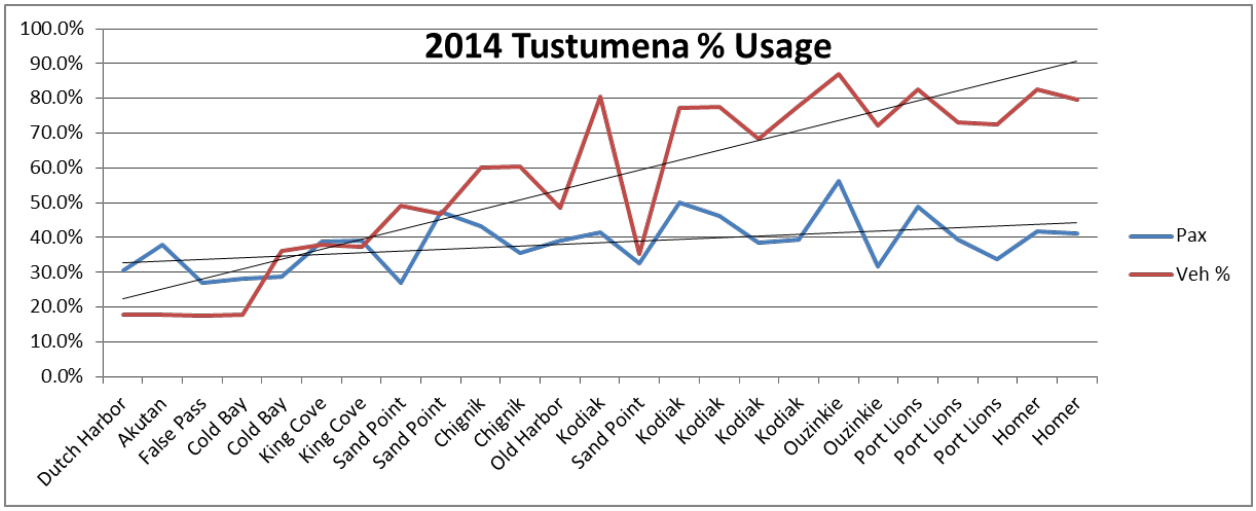


Figure 20: 2014 Tustumena Usage

Some communities are listed several times as they involve several links to different communities: ex. Cold Bay has links to False Pass and King Cove. Dutch Harbor is co-located with the community of Unalaska.

4.4 Land

Figure 21: Trail Systems

Above, at the end of Anton Larsen Bay Road on Kodiak Island, a well-developed trail is used by ATVs, snowmobiles, and the occasional truck. One project in this plan proposes upgrading this trail to a road.

Figure 22: Alternative Transportation

Below, residents in Chignik Lagoon illustrate common use of alternative motorized transportation.

Land transportation refers to travel by roads in most parts of the U.S. Although roads may provide land transportation in Alaska's larger population centers, that is not always the case in Southwest Alaska (Figure 21). Few road corridors exist between widely spaced communities in the region. Land transportation planning in Southwest Alaska is not limited to automobiles and trucks; instead, it includes a variety of travel modes—snowmobile, ATVs, amphibious ATVs (such as ARGOs), hovercraft, pedestrian, bicycle, dog sled, and horse (Figure 22).

One of the strategic goals of the Let's Get Moving 2030 is to constrain needs (Strategy 3). Without new revenue, DOT&PF is not able to meet the goals of

transportation plans, nor the needs for system maintenance. One action item to meet this strategy is to transfer ownership of local roads to local communities (Action Item 3.7) (DOT&PF, 2008). Data analyzed during Phase 1 shows that the State owns and maintains 130 miles of roads functionally classified as either Rural Minor Collector or Rural Local roads (Tables 30 and 31, DOT&PF, 2014).

The Bristol Bay Native Association (BBNA) is pursuing possible funding for transit development, and the City of Dillingham has expressed an interest in developing a transit program. Kodiak has one city bus, and a "paratransit" service that provides scheduled transportation with those who have special needs.

According to 2010 census data, a larger percent of Southwest Alaska residents walk to work than in the rest of the nation or in the rest of Alaska (U.S. Department of Commerce, 2010). Ted Meyer, Bristol Bay Borough Planner (since moved to Lake and Peninsula Borough) explained in 2011 that non-resident pedestrians have a significant impact on many Southwest Alaska communities, and can increase year-round residential population by tenfold, as happens in Naknek during the fishing season. Many of these pedestrians are seasonal workers or tourists who have limited English proficiency. When these pedestrians are walking on the road shoulders, they are often sharing space with all-terrain vehicles or snowmobiles.

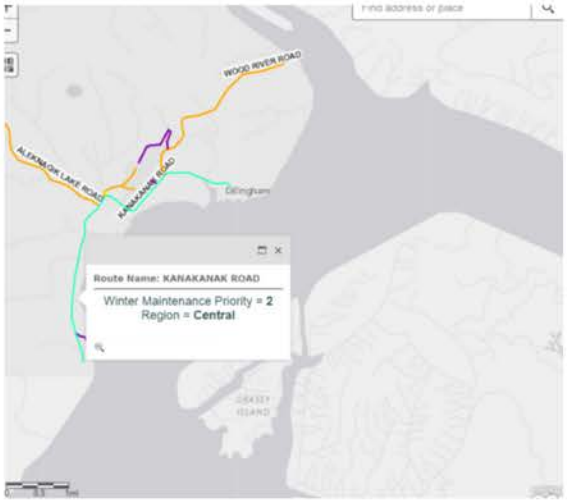
More details on these topics can be found in the Phase I report, Chapter 6, Land Transportation (DOT&PF, 2014).

4.5 Safety and Emergency Response

The SWATP must provide consideration of projects, strategies, and services that increase the safety and security of the transportation system for motorized and non-motorized users (49 United States Code [USC] 450.206). This concern can be broken down into two basic areas, safety and security.

DOT&PF Road Clearing Priorities

http://dot.alaska.gov/stwdmno/wintermap/



Road clearance priority levels are shown on an interactive map:

1: High-volume, high-speed highways, expressways, minor highways, all safety corridors and other major urban and community routes. May take up to 24 hours to clear after a winter storm.

2. Routes of lesser priority based on traffic volume, speeds and uses. Typically, these are major highways and arterials connecting communities. May take up to 36 hours to clear after a winter storm.

3. Major local roads or collector roads located in larger urban communities. May take up to 48 hours to clear after a winter storm.

4. Minor local roads that provide residential or recreational access. May take up to 96 hours to clear after a winter storm.

5. Roadways that are designated as "No Winter Maintenance" routes, e.g. Williamsport Pile Bay Road, Dillingham's Snake Lake Road, or the Iliamna-Nondalton/Newhalen River Road. Generally cleared only in spring to open road for summer traffic.

1. Safety: Safety of users is explicitly considered during the design process. Road safety features include constructed items such as road width, clear areas along roadways, or fewer curves for roads with higher speeds. Aviation design features include pavement configuration, lighting, and clearance of imaginary surfaces such as safety areas designed to reduce damage to aircraft that depart the runway.

After design and construction, safety features are facilitated through maintenance and operations practices. For instance, certificated airports remove snow in accordance with their snow and ice control plan, which will outline how much snow can accumulate, which areas are cleared first, and where snow can be stacked. Likewise, DOT&PF has established a list of which roads will be cleared of snow first. There are also standards for maintenance of signs, lighting, vegetation, and other designed elements.

Transportation infrastructure facilitates efficient emergency response (police, fire,

Emergency Medical Services), and access for those maintaining and repairing critical utilities after a disaster. During an emergency response, DOT&PF will participate with local agencies using the National Incident Management System. DOT&PF hosts emergency response drills at each certificated airport every three years, and invites other local emergency responders to participate.

2. Security: Transportation is crucial to economic stability and to our ability to respond to emergencies. Damage or destruction of transportation infrastructure can have wide-reaching and profound impacts. For this reason, transportation infrastructure can be either the primary target of terrorists, or a collateral target that makes response to a primary target more difficult.

The disasters that Southwest Alaska or any other Alaskan community would face can be divided between natural disasters and man-made disasters. Transportation infrastructure in Southwest Alaska needs to be built with increased awareness of both.

4.5.1 Natural Disasters

As coastal land positioned between two plate tectonics on the northernmost section of the Ring of Fire, Southwest Alaska is an area of focused natural disasters that include volcanic activity, seismic activity, and impacts of climate change that include flooding, coastal erosion, storm surges, and other effects of stronger storms.

The Alaska Volcano Observatory maintains an interactive map of Alaska's volcanoes, and provides updates on volcano activity (Figure 23). This screen shot shows volcanoes in Southwest Alaska (Alaska Volcano Observatory, 2014).

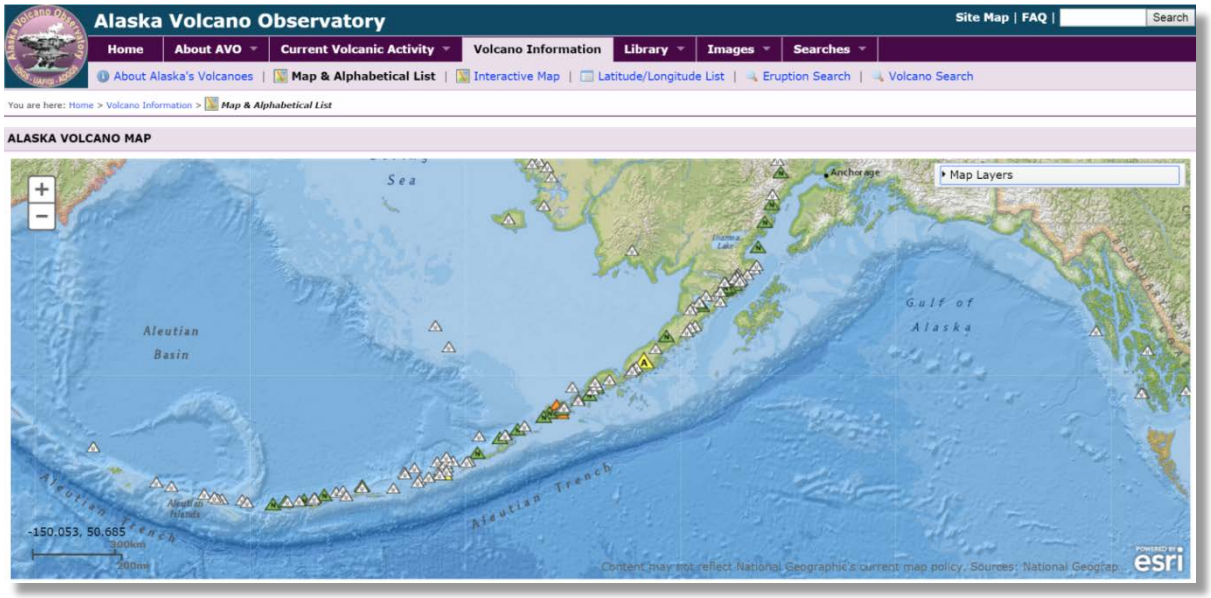


Figure 23: Alaska Volcano Map

The Alaska Volcano Observatory maintains an interactive map of Alaska's volcanoes, accessed at https://www.avo.alaska.edu/volcanoes/index.php

The Alaska Earthquake Center provides a map that shows earthquakes along the Aleutian Chain resulting from the Pacific Plate being forced below the North American Plate, creating the Aleutian Megathrust (Figure 24) (Alaska Earthquake Center, 2006).

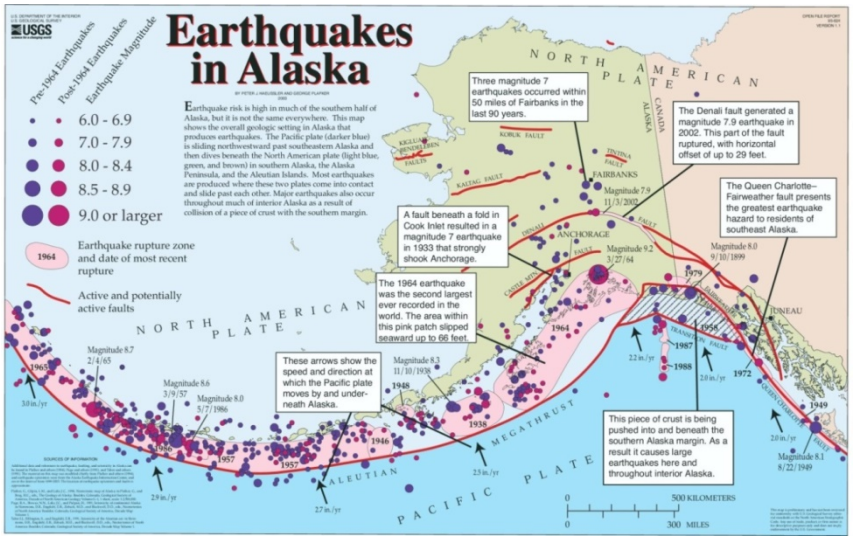


Figure 24: Earthquakes in Alaska

Two tectonic plates meet along the Aleutian Chain, resulting in multiple earthquakes. This tectonic activity forces islands upwards, counteracting sea level rise brought about by global warming. (Alaska Earthquake Center, 2006).

Climate change is impacting maintenance costs statewide, and one key issue is funding of repairs. In FY2016, DOT&PF has $12 million to address repairs resulting from warming or thawing of permafrost, and this is a fraction of the need. The former Statewide Maintenance and Operations (M&O) Chief, Mike Coffey, said they could spend three times that if they had it. Southwest Alaska is not anticipated to be significantly impacted by sea level rise due to upward thrust between the North American and Pacific Plates, resulting in land rising with sea level (Coffey, 2015). Climate change could affect coastal areas in a variety of other ways. Shoreline erosion, coastal flooding, and water pollution affect man-made infrastructure and coastal ecosystems. Confronting existing challenges is already a concern (EPA, 2014). Federal emergency capital funding is limited to replacement in kind. One coastal road in the Nome area is destroyed every year, and every year is rebuilt the same way. As the Statewide M&O Chief says, "Federal funding regulations keep the State from doing the right thing," (Coffey, 2015). Southwest Alaska has seen a decline in shore ice in the winter, making coastal villages more vulnerable to winter storm wave action. (University of Alaska, Fairbanks [UAF], 2013). Coastal areas are also vulnerable to increases in the intensity of storm surge and heavy precipitation. (Climate Change and the National Academies, 2012(b)).

Avalanches also pose a hazard, but DOT&PF does not actively mitigate avalanches in the Southwest Alaska area. Instead, they respond to clear the area if an avalanche occurs. Kodiak's Pasagshak Road has historically had avalanches between Mileposts (MP) 4 and MP 6, and between MP 7 and MP 9. Future road development in Southwest Alaska will consider avalanche threat during design.

4.5.2 Man-made hazards

Southwest Alaska's geographic position as a coastal region and proximity to resources renders the area vulnerable to shipping disasters that include offshore and onshore spills of hazardous materials, and terrorist activity. While the federal government may be responsible for man-made disaster response, the impacts are profoundly local. DEC is the primary State

agency responsible for Hazardous Material Response, such as an oil spill. Planning for rare events with severe impacts is challenging for communities.

Terrorist activities may target infrastructure not only as a primary target, but in order to interfere with response. Federal budget cuts that impact infrastructure development also impact the federal agencies tasked with response, decreasing the efficiency of detection and response.

Extraordinary melting of sea ice in the Arctic in 2012 shattered the all-time low sea ice extent record set in September 2007. The decline in sea ice has provided new opportunities to the shipping industry to use Artic waterways for freight delivery between the continents of the northern hemisphere. With an increase in maritime traffic comes an increase in maritime accidents (Weather Underground, 2015). While the USCG is the first responder to a shipping disaster, the impacts could be overwhelming at the local level.

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5.0 ISSUES AND NEEDS

In Phase I, specific transportation concerns and issues were identified through outreach to the public and to local officials, as well as through interviews with key transportation providers and industry representatives. These issues identify the problems to be solved, not specific projects requested.

With the region's dependence on aviation, the desire for longer runways and lower approaches are perennial desires. Below we examine which runways might be candidates for these improvements.

5.1 Runway Length

The current and forecasted fleet of aircraft expected to use an airport drive future runway length. Evaluation of fleet forecasts and future runway length requirements was based on:

- Carrier interviews and public input,
- ALPs and AASP Runway Length Goals, and
- An evaluation of communities with little or no barge service.

5.1.1 Carrier Interviews and Public Input

During interviews, the primary carriers serving the region provided information on their current and potential fleet mix. Carriers were asked whether runway length limits the type of aircraft flown or payload. Most carriers had no specific plans to change aircraft in the foreseeable future or were unwilling to disclose that information due to competitive reasons.

One carrier suggested the ATR-42 or ATR-72 as a possible future cargo aircraft to serve the region. This aircraft requires an approximately 4,375 foot takeoff length and 2,300 foot landing length with a fully loaded aircraft. All Regional Class airports in the region could be served by this aircraft without changes to runway length. Most of the village airports in the region could accept landings from a fully loaded ATR, while takeoffs would be restricted to

less than maximum takeoff weight in many cases. Since most airports receive cargo and do not ship out cargo, this aircraft could become widely used in the region at both Regional Class and multiple smaller airports, when larger size shipments justify the aircraft.

Alaska Airlines will be eliminating Boeing 737 combi aircraft service, switching to an all-cargo B737-700 and all-passenger B737-800 aircraft. Runway length is adequate for these aircraft in locations served by Alaska Airlines, but Dillingham could benefit from a small extension. Alaska/Horizon Airlines has not indicated that they plan to introduce the Bombadier Q-400 to locations in Alaska beyond the service already provided seasonally at Kodiak and Fairbanks. However, if Q-400 service expands, it would be more likely to serve existing Regional Class airports already being served by Alaska Airlines, rather than provide service to new airports. The desired runway for the Q-400 is paved, 4,500 to 5,000 feet in length, and 100 feet wide.

Carriers commented on whether any new airport hubs should be developed to encourage more efficient routing of aircraft in the region. No new hubs were proposed by the carriers interviewed. Both carriers and communities expressed support for well-developed Regional Class airport facilities because these airports support air service to most airports in the region.

When asked about runway extension needs at specific airports, carriers made the comments below, based on their current aircraft fleet:

- Chignik Lagoon – 1,800 feet long, the existing length can restrict payloads.
- Chignik Lake – 2,800 feet long, it is the most feasible for extension among the three Chignik Airports.
- False Pass – At 2,150 feet long, there are mixed opinions on the need for extension. It is adequate for small airplane flights from Cold Bay, but not ideal for Pilatus from Anchorage. A mountainous obstruction in one approach could become a greater conflict with an extension.

- Karluk – 2,000 feet long, it needs to be extended to 2,600 to 3,000 feet for the Islander.
- Kokhanok – At 3,300 feet, it should be extended to 3,500 to 4000 feet plus for the DC-6.
- Larson Bay – At 2,690 feet, it is recommended to be extended to 3,200 to 3,700 feet for the Caravan/King Air.
- Levelock – Extension of this 3,821 foot runway might help with fish shipment.
- Nondalton – This 2,800 foot airport could be extended to 3,000 to 3,500 feet for the DC-4, or extend to 3,500 to 4000 feet plus for the DC-6.
- Old Harbor – The existing 2,750 foot runway is being extended to 4,700 feet.
- Pedro Bay – This 3,000 foot runway could be extended to 3,500 to 4000 feet plus for the DC-6.
- Port Lions – At 2,200 feet, this airport could be extended to 2,600 to 3,000 feet for the Islander.
- Unalaska – At 4,100 feet, this runway could be extended to 5,000 feet to better accommodate passenger aircraft (Figure 25).

The general public was also asked about runway extension needs. Most comments either favored longer runways at Regional Class airports or supported extensions that would support flying out fish from Community Class airports. Other comments supported runway extensions but did not provide specific justification. In general, both carriers and the public commented that smooth, safe runway surfaces, operable lighting systems, and lower approach minimums were higher priorities than extending runways. Some noted that surfacing and lighting projects are much less expensive than runway extensions, and when funding is limited, they should be given a higher priority than expensive runway extensions.

Figure 25: Tom Madsen Unalaska Airport

Extending Unalaska's airport would benefit airline operations, but is relatively expensive due to fills in deep water at either end.

5.1.2 Airport Layout Plans and AASP Runway Length Goals

The AASP has established a goal of 3,300 feet for Community Class Airports, when local conditions support the need for a longer runway.

The table in Appendix H shows how the airport's current runway length compares to the length recommended in the ALP. In almost every case the current runway length is very close the recommended length on the ALP. The "Comments" column in the table also shows when runways were built and extended. Most of the airports have had their runways lengths evaluated and improved over the last 15 years. Airports that are not at least 3,000 feet typically have low populations, are connected to a longer runway by road, or have terrain or other issues making an extension impractical.

Runways for airports in the Regional Class meet their ALP runway length goal except for Dillingham and Unalaska. Dillingham has a planned runway shift to address runway safety area deficiencies. Any extension of that runway would likely coincide with the planned runway shift. Unalaska recently extended its runway as part of a runway safety area project. Additional extensions would be constrained by the high costs of extending the runway into deep waters off the runway ends.

5.1.3 Communities with Limited or No Barge Service

Communities that do not receive deep-draft barge service are more dependent on air service for delivery of provisions. Air shipment of heavy freight and fuel is generally more expensive than barge shipments, especially if runways are short and smaller aircraft are used. The Alaska Barge Landing System Design Statewide Report (U.S. Army Corps of Engineers [USACE], 2009) outlines community barge facilities and which ones may be substandard for fuel delivery. Airline interviews provide insights on which communities might benefit from longer runways. For the discussion below, population information was accessed through the State of Alaska Department of Commerce and Community Economic Development (DCCED) Community Database (DCCED, 2015).

5.1.3.1 Iliamna Lake Area Communities

Iliamna Lake area communities of Igiugig (population 53), Kokhanok (population 167), Pedro Bay (population 47), Newhalen (population 207) and Nondalton (population 164) have no direct deep draft barge service to the communities, primarily because deep draft barges are unable to navigate the shallow Kvichak River. Each of these communities has slightly different freight and fuel delivery conditions, as summarized in Appendix I.

Igiugig, Kokhanok, and Pedro Bay receive heavy freight from barges that deliver to Williamsport on Cook Inlet. Heavy freight is trucked 14 miles on the unimproved Williamsport Pile Bay Road, to Pile Bay on Iliamna Lake. Trucking adds time and expense and is further complicated by transfers between barge to truck, tide delays, poor road conditions and small volumes. Once cargo reaches Pile Bay, it is transferred from truck to lake barge and then transported on Iliamna Lake to the communities. Like most rural communities, general freight (not heavy) is received by air. While heavy freight is delivered over land from Williamsport in Cook Inlet to Pile Bay on Iliamna Lake, fuel is delivered by air to Iliamna and then distributed to lake communities via barge (Figure 26).

Figure 26: Iliamna Barge Service

Fuel is delivered to Iliamna by airplane, then barged to other communities on the lake. Other heavy freight is hauled over Williamsport Pile Bay Road and distributed to lake communities through Pedro Bay.

Newhalen receives heavy freight via the Williamsport Pile Bay Road, as described above. Once the freight is barged to Iliamna, it is trucked to Newhalen. General freight is shipped by air to Iliamna and trucked from Iliamna to Nondalton. Fuel is also shipped by air to Iliamna and delivered to Nondalton by pipeline and truck.

According to the 2009 USACE Report, fuel barge operators previously delivered some fuel by barge to Iliamna Lake communities, via the Kvichak River. These braided flats are about three miles from Igiugig, and impact seven miles of the river. They continue to become shallower, currently limiting access to vessels with drafts less than two feet. Because fuel has to be transferred from deep draft to shallow draft barges, combined with the low volume of fuel delivered and multiple trips required by smaller shallow draft barges, it became more cost-effective to fly fuel into Iliamna and the surrounding communities. The fuel barge operators do not expect that improving the road from Pile Bay to Williamsport would improve efficiency enough to stop delivering fuel by airplane.

Figure 27: Road from Iliamna to Nondalton

Heavy freight is trucked along this road from Iliamna to a crossing on the Newhalen River, where residents move the freight via skiffs or on small barges across the river. Freight is then trucked to Nondalton.

Nondalton is not on a barge accessible river or Iliamna Lake. Nondalton receives heavy freight via the Williamsport to Pile Bay Road, by barge on Iliamna Lake to Iliamna, and then trucked via gravel road to the Newhalen River (Figure 27) where residents haul the cargo across the river with skiffs or small barges and truck it to Nondalton. A bridge has previously been considered to improve passenger and freight access to Nondalton, but the environmental analysis has been halted while the DOT&PF consider project funding. All fuel is flown to Nondalton.

Because of the short runway length, air fuel deliveries are limited to summer-only deliveries by Douglas DC-4 aircraft.

There are two proposed projects that, in conjunction, would improve access between Cook Inlet and Bristol Bay – the Williamsport Pile Bay Road and the Kaskanak Road. Both projects are described in Section 8.0, and the Williamsport Pile Bay Road is further described in Appendix M.

5.1.3.2 Nushagak River Communities

Koliganek (population 231) is 65 miles up the Nushagak River. Freight and fuel are delivered by barge, but low water levels on the Nushagak sometimes limit barge deliveries. Portage Creek (population 1) is a community on the Nushagak, with similar limited barge delivery.

5.1.3.3 Chignik Lake

Chignik Lake (population 70) receives freight that is lightered with shallower draft boats from Chignik Lagoon (population 72) via the shallow Chignik River. Fuel is delivered to Chignik Lake by air because of the shallow river access.

5.1.4 Air Carrier Comments

Several air carriers were interviewed about freight and fuel delivery to the above communities that have limited or no barge access. Comments were primarily directed toward fuel delivery because that is where there is greatest need for consideration of runway length increases. Both fuel carriers commented that fuel delivery costs are reduced when there is competition between carriers of fuel. Comments are summarized below:

- Everts Air Cargo
  - Delivers fuel with a Douglas DC-6, with a minimum runway length requirement of 3,500 feet and an ideal runway length of over 4,000 feet. The aircraft can carry 5,000 gallons of fuel.

- Delivers fuel with a Curtiss C-46, with an ideal runway length of 3,500 feet. The aircraft can carry 2,000 gallons.
- If Nondalton, Pedro Bay, and Kokhanok were extended, Everts could bring in a Douglas DC-6, but currently is able to serve them with smaller loads on a Curtiss C-46.

- Alaska Air Fuel
  - Delivers fuel with a Douglas DC-4, with a minimum runway length of 3,000 feet and an ideal length of 3,500 feet. The aircraft can carry 3,000 gallons.
  - Very short runways at least 1,600 feet long are served with multiple trips with a Beech 18 carrying 400 gallons of fuel.
  - Nondalton could be extended to at least 3,000 feet. Service to Nondalton is limited to summer operations and is further limited in the summer when breaking is poor.

5.1.5 Runway Length Recommendations

Recommended runway lengths in Appendix J are based on the above investigations, discussions with DOT&PF, and prior studies. The recommended extensions at many airports follow the guidance from previously completed ALPs. In many cases the recommended ultimate runway lengths are not near term needs, but are considered in light of socioeconomic changes. Community population, economic trends, and aircraft use should be revalidated before initiating runway extension projects, particularly in lower population communities. In some cases, runway extensions are warranted, but terrain, water, or other local conditions prevent a cost effective extension.

5.2 Approach Improvements

The DOT&PF, FAA, and stakeholders have been completing a statewide evaluation of priorities for new or improved approaches for Alaska's airports as part of the AASP. Site conditions shape preliminary determinations on new approach feasibility. Also considered were what infrastructure or aeronautical surveys were required to implement new approaches. Appendix K lists the Southwest Alaska airports that were evaluated for new approaches, the type of approach, whether the airport was proposed for an approach in the near term, and whether an air carrier has submitted comments in favor of the approach. The table also documents whether an aeronautical survey has already been completed to support the approach, whether any infrastructure is needed, and any other feasibility considerations.

Airports recommended for near term approach improvements have completed aeronautical surveys and no known terrain issues. They have other required infrastructure such as a certified weather station, adequate runway length, and runway edge lights needed to support the new approach. Airports lacking these features were not recommended, but should be re-evaluated when improvements are made.

Airports listed with "Approach Recommended by AASP" marked are being considered by the FAA for either a Localizer Performance with Vertical Guidance (LPV) or a Localizer Performance (LP) approach. LPV and LP approach procedures are specific types of instrument flight procedures that rely on Wide Area Augmentation System (WAAS) and on-board receivers. The LPV approach procedure provides both vertical and horizontal guidance to the pilot, and can provide a minimum descent altitude as low as 200 feet. The LP approach procedure is a non-precision approach, providing horizontal guidance but not vertical guidance. LP approach procedures will provide the lowest possible minimum descent altitude (MDA) at airports where obstructions and/or infrastructure prevent an LPV procedure, and can provide a minimum descent altitude as low as 300 feet.

The following Southwest Alaska airports are not feasible for a LPV or LP approach.

- Unalaska
- Port Lions
- False Pass
- Chignik
- Old Harbor
- Chignik Lagoon
- Pedro Bay
- Perryville
- Larsen Bay
- Karluk
- Chignik Lake
- Akhiok

5.3 Other Issues and Needs

Many issues and needs will influence transportation decision-making, reflecting transportation's interaction with many aspects of society. Below we list some of the issues and needs collected in Phase I. Many of these ideas shape how we approach transportation, and deserve consideration during project development.

GENERAL

Economic Growth: Transportation improvements should support the region's economy. Fishing is the top economic driver for the region. Potential future economic opportunities cited included oil and gas development, mining, and tourism.

Cost of Living: Improve transportation systems to reduce transportation costs and mitigate the rising cost of living. Fuel prices significantly impact the cost of living in this region, since fuel, freight, and people move over long distances via aviation and marine systems. The high cost of living impacts community sustainability and the potential for economic development.

Isolation: Southwest Alaska is still largely a frontier, and the transportation system is still being developed. Communities have long-standing projects and plans to further develop the system to meet freight and passenger demands.

Hazard Mitigation: Infrastructure may need to be "hardened" to better withstand or mitigate natural disasters. Redundant systems improve disaster resilience, as does practice of disaster response drills.

Safety and Security: In addition to infrastructure condition concerns, municipal governments are responsible for infrastructure security requirements, emergency planning, and incident management and response. Emergency response capabilities may not be adequate to the needs of increasing international marine traffic and outer continental shelf oil exploration.

Climate Change: The impacts of climate change create some uncertainty in the transportation sector. Alaska is heavily dependent on aviation and marine transportation which both have large carbon footprints per traveler compared to highway use.

Intermodal Transportation: Focus funding on intermodal system development to increase transportation efficiency and reduce costs (Figure 28).

Hubs: State resources should be focused on regional and sub-regional transportation hubs, and opportunities to link more communities to hubs via road should be

Figure 28: Intermodal Transportation

This boat launch area in Aleknagik illustrates how multiple modes come together in one place.

investigated.

Maintenance: There was explicit support for prioritizing maintenance of existing infrastructure (as opposed to building new) as federal funding declines. Design elements that reduce maintenance costs were also encouraged.

Transportation Funding: Develop a strategy to address shifting funding opportunities, including agency partnering on projects of mutual interest, private-public partnerships, and assistance to smaller communities. The LRTP will address this issue at a statewide level.

Transportation Equity: Clarify the State's role in ensuring some basic level of essential transportation service for all communities. The LRTP will address this issue at a statewide level.

AVIATION

Air Service Capacity and Reliability: Capacity is inadequate, particularly during the busy fishing season and summer. Passenger and cargo service is often unreliable, most notably during busier seasons. This concern is a private industry issue, and not under the direct control of DOT&PF.

Economic Impacts on Aviation: National and state economic trends could have a negative effect on aviation demand, though regional development may mitigate those impacts.

Technology: The opportunities associated with new aviation technologies need to be balanced with implementation costs.

Runway Length: New aircraft may be serving the region, and their requirements will be compared to the runway length available. Longer runways may be needed for communities that lack reliable barge service.

Other Airport Infrastructure: Some stakeholders suggested other improvements to runway and apron environments and lease area improvements.

Population: As noted earlier, population for the Southwest Region is forecasted to decline. Passenger enplanements and cargo tonnage is forecasted to remain relatively flat, with the greatest growth being in cargo at Regional Class airports like Unalaska, Kodiak (Figure 29), and Dillingham that serve regional needs and support the regional fishing industry.

Figure 29: Kodiak Airport

Regional Class airports like Kodiak are expected to see the greatest growth in enplanements and cargo.

MARINE

Limited Harbor Funding: The Alaska Municipal Harbor Grant Program is the primary funding mechanism for ports and harbors in Alaska (Figure 30). Funding available under this program is approximately $5 million annually.

Technology: New technologies are available that could improve safety in congested waterways.

Figure 30: Sand Point Harbor

The primary funding mechanism for harbor improvements is through the Alaska Municipal Harbor Grant Program. Section 3.1 of this report provides more information on this source.

Marine Service Capacity and Reliability: Vessel safety would be improved with these services provided locally, with repair work being performed in Alaska.

Economy: International, national, and state economic trends could have a negative effect on marine demand, though regional development may mitigate those impacts.

Maintenance and Improvements: Ports and harbor repairs and improvements should be prioritized based on the level of regional impact.

AMHS Service Congestion Points: Travelers between Kodiak and Homer can absorb all the space available on the ferries, preventing access for travelers to more distant ports. An analysis of ferry system options and challenges can be found in Appendix L.

LAND

Intermodal and Community Access: Roads in Southwest Alaska primarily provide access within communities and to marine and aviation services, which provide access over long distances.

Bridges: Most bridge concerns regarded specific pieces of infrastructure, such as Williamsport Road bridge needs, Alaska Peninsula Highway bridge upgrades, or Naknek bridge construction.

Trails and Sidewalks: As noted above, the area has communities where transient seasonal workers increase the community's population tenfold. These transient workers do not typically have vehicles. Trail and sidewalk access aid in keeping pedestrians off of busy streets and limits conflicts with other motorized vehicles (such as ATVs) that use road shoulders. In some communities, trail networks serve transportation needs in the same way that roads do in more developed communities.

Transit: Dillingham, Kodiak, and Unalaska are interested in transit development and noted that operational funding during start-up would aid in getting the program started. Kodiak has one bus serving mostly cannery workers and seniors.

6.0 INVESTMENT REPORT

Any plan for the future needs to consider current conditions, and assess how previous plans were implemented. Below we recognize the accomplishments since the 2004 update to the SWATP.

6.1 Aviation Investment Report

Since 1982, the FAA has invested approximately $569 million in Southwest Alaska aviation (administered by DOT&PF), either in planning, design or construction projects (airport development). This represents an average of $17.8 million per year, of which approximately $390,000 per year spent on planning, and $17.4 million per year spent on airport development (Table 2).

Table 2: FAA Airport Funding of Southwest Alaska Airports – FFY 1982 – 2013

	Airport Development	Planning	Total
Total	$556,990,000	$12,460,000	$569,450,000
Annual Average	$17,406,000	$389,000	$17,795,000

New Southwest Alaska airports account for nearly 20 percent of this historical FAA funding, most notably, the recently constructed new airport at Akutan. Table 3 outlines federal funding spent for new airports since 1982.

Table 3: New Southwest Alaska Airports – FFY1982 – 2013

New Airport	AIP Grant Year	Amount (Millions)
AKUN / AKUTAN	2013	$44.3
CLARKS POINT	2004	$7.7
EGEGIK	1993	$3.6
LEVELOCK	2000	$2.9
MANOKOTAK	2006	$13.0
NEW STUYAHOK	2006	$14.8
OUZINKIE	2011	$16.3
PILOT POINT	1999	$3.0
SAINT GEORGE	1991	$7.0
Total AIP Expenditures for New Airports		$112.7

Over the last four years the Southwest Region airports have received approximately 26 percent of all federal AIP Funding spent in Alaska for rural airports. The $36.5 million average spent statewide over the last four years (Table 4) is over twice as much as the 30 year historical annual average of $17.8 million (Table 2).

Table 4: Airport Spending in Southwest Alaska, 2009-2013

	Average Spent Over Last 4 Years	% of Statewide Total for Rural DOT&PF Airports
Regional Class	$20.0 Million/Year	25%
Community/Local Class	$16.5 Million/Year	29%
Total	$36.5 Million/Year	26%

6.2 Surface Investment Report

Land transportation improvements are largely multi-modal in Southwest Alaska because of the region's dependence on marine and aviation transportation networks. Table 5 summarizes projects recommended in the 2004 report and a summary of their status. A more detailed discussion of each project follows.

Table 5: 2004 Recommended Project Status, Surface Transportation

Project Name	Planning Est.	Invested	Status	Carried forward?	Reasoning
Aleknagik Wood River Bridge	$25M	$25M	Construction	N	Complete
Chignik Inter-Village Road	$43M		Conceptual	N	Not cost effective
Chignik Port Improvements	$8.6M		Construction	N	Complete
Iliamna/Nondalton Connection	$30M		Environmental	N	On hold
King Cove/Cold Bay Connection	$21M		Environmental	Y	Pending DOI action
Kodiak Dock Improvements	$13.6M	$13.2M	Construction	N	Complete
Kodiak Road to Launch Complex			Conceptual	N	Launch Complex reorg
Naknek/S Naknek/ King Salmon Road Link and Area Aviation Study	$37M		Planning	N	Complete
Williamsport Pile Bay Improvements	$72M		Study Complete	Y	Multi-year development
Winter Trail Marking for Bristol Bay	Variable	$400K	Ph 1 Complete	N	Maintenance funding
Unalaska Dock Improvements			Conceptual	Y	Continuing Priority

Aleknagik Wood River Bridge: A bridge over Wood River was completed in 2015, and an additional $6.3 million is programmed to improve Suavak Road from Aleknagik Lake Road to Wood River Bridge (Figure 31).

Chignik Inter-Village Road: This road would link the communities of Chignik Bay, Chignik Lake, and Chignik Lagoon by a gravel road. Estimated costs in 1997 were $26 million. Assuming a three percent yearly inflation rate, the project would cost $43 million in 2015, and serve 246 people. This project was considered during the plan development process, but the cost was determined to not be proportionate to benefit.

Figure 31: the Grand Opening of the Aleknagik Wood River Bridge

Pictured from left to right: DOT&PF Commissioner Marc Luiken, Mayor Jane Gottschalk, Senator Lyman Hoffman, and Representative Bryce Edgmon. Photo credit: Jim Chapman.

Chignik Port Improvements: Municipal dock improvements include uplands development with a riprap face, sheet pile dock, and fendering system. The project addresses AMHS safety concerns, and positions the community for economic development through port services. Construction was slated to begin in 2015.

Iliamna/Nondalton Connection: Work on the environmental document has been suspended, while DOT&PF reviews funding availability.

King Cove/Cold Bay Connection: Alaska's congressional leadership continues to push for this project. In December of 2013, the Interior Secretary rejected a Record of Decision in support of the project. More information is available in Section 8.0 of this plan.

Kodiak Dock Improvements: Moving the municipal dock was considered, but the State instead put out a Request for Proposal for ferry dock improvements that included reconstruction of the existing Pier 1 multi-use facility. AMHS safety concerns are addressed with the project.

Kodiak, Road to Launch Complex: The previous plan recognized the complex as a possible source of economic development, but the complex is not financially sustaining. In February of 2015 the Alaska Aerospace Corporation, formed by the State of Alaska to develop aerospace in the state, was returning major state project funding and looking toward privatization. The road was not developed and is not carried on into this plan.

Naknek/South Naknek/King Salmon Road Link and Area Aviation Study: In 2006, the Naknek Crossing Intermodal Economic and Airport Use Study was completed. A low estimate for bridge construction from Fishery Point is $26 million in 2005. Using three percent annual inflation, current costs would be $37 million. The bridge is not being carried over into this SWATP because the earmark was not sufficient to construct the bridge.

Williamsport Pile Bay Road: This project was extensively examined in the 2007 Iliamna Regional Transportation Corridor Analysis. Project scope can be broken into elements, including road improvements, and port improvements in both Williamsport and Pile Bay. A 2012 project repaired the bridge over the Iliamna River, and a bridge replacement project is in design. More information on this project can be found in Section 8.0 of this report, and in Appendix M (Figure 32).

Figure 32: Williamsport Pile Bay Road

This road connects Cook Inlet and Lake Iliamna communities. Improvement studies were recommended in the 2004 plan, and further study and development is carried over into this plan.

Winter Trail Marking for Bristol Bay: Some initial trail mapping has been done by the BBNA. Funds for extending the service or maintaining current markers does not have a statutory source, but is provided by the State as available. A well-developed scope for continuing this project is outlined in the Dillingham Comprehensive Plan Update and Waterfront Plan (City of Dillingham, 2010).

Unalaska Dock Improvements: Unalaska has a 2005 High Priority federal earmark (Section 1702, number 400) for construction of an AMHS ferry terminal including approach, staging and uplands improvements. More information can be found in Section 8.0 of this report.

7.0 FOLLOW-UP STUDIES

This plan should be updated in approximately five years. In the meantime, additional studies could better position future decision-makers to manage limited transportation funds. These possible studies include:

- *Coordinated Transportation, Energy, and Health Plan:* This study would focus primarily on coordinated policy and projects relating to community development. Sub-area plans may be an effective place to start, with later consolidation into a region-wide plan.

- *Access to Health Care:* The public commented on frustration about scheduling air carrier transportation for medical appointments. Currently, people request a trip and then receive Medicare funds. By the time they receive the funds, flights tend to be booked up, especially in the busy summer season. A coordinated study with Health and Social Services and airlines might determine a strategy for making Medicare travel more efficient. Possible solutions include reserving a number of seats for Medicare transportation, or some sort of advance reservation system that holds a reservation until a number of days before travel, allowing time to receive funds and pay for the ticket.

- *Commercial Fishing and its Impact on the Local/State Economy:* This analysis would determine the impact of commercial seafood harvest jobs. Most harvesters are self-employed, and work for just a few months a year, making the collection of this data difficult to capture. An additional question is where and when licensed crew fish. See page 12 of the Phase 1 report (DOT&PF, 2014). This economic information would aid in making informed decisions about transportation infrastructure development and how to best support this industry (Figure 33).

- *Fish Haul Out Study:* This study would analyze the specific communities/airports that support fish haul out activities, the existing runway length vs. requested runway extension. Throughout the SWATP, several communities requested longer runways to support fish haul out activities; however, there is not currently enough data to support such requests. This study would provide a balanced analysis of how these extensions or improvements would improve revenues, how much revenue would be made because of the improvements, and a detailed cost/benefit analysis.

Figure 33: Unalaska Fishing Gear Storage

Commercial fishing is an economic driver for the Southwest Alaska area, but some aspects have not been formally studied and are difficult to capture because of seasonal self-employment.

- *Cost Savings from Transportation Efficiencies:* Projects are regularly proposed to improve transportation efficiency for providers (air carriers, barge companies), with the assumption that any savings from these efficiencies will be passed on to the customer. Verification of whether this is the case in the SWAK, where limited population results in fewer competitors, is required.

- *Cost Savings from Project Efficiencies:* This study would provide an analysis on how transportation improvements with the highest efficiencies would impact funding available for other projects. This study would also provide an analysis on the negative impacts a project passes on by not being complete on time. Concerns about the amount of time it takes to get through the funding, environmental, and design

process for projects were brought up during public outreach. When a project gets stalled, it appeared to commenters that developers have to start over from the beginning again. In particular, the environmental permitting process seems to take too long and the same issues, such as Stellar Eider, keep getting studied repeatedly over a long period of time and at great expense. By the time a project gets built, project costs have escalated considerably.

- *Hub delivery of services:* Study is required to verify transportation and economic hubs make delivery of services such as education and health care more cost effective.

- *Regional Public Transit:* This study would document the public transportation conditions in the region and provide project and funding recommendations for communities to access public transit dollars either through the State of Alaska or the FTA.

- *Bicycle and Pedestrian Facilities:* This study would document the existing conditions of the bicycle and pedestrian facilities in the region, focusing mainly on the transportation hub communities. The study would provide project and funding recommendations for communities to access bicycle and pedestrian facilities dollars through state, federal, community, for-profit and non-profit sources.

- *Regional Trail System Plan:* Southwest communities currently use their trail systems as an alternative to fully-developed roads (Figure 34). A trail system study could look at trail standards for different levels of use, classifications (predominantly transportation versus predominantly recreational), maintenance responsibilities, and funding issues.

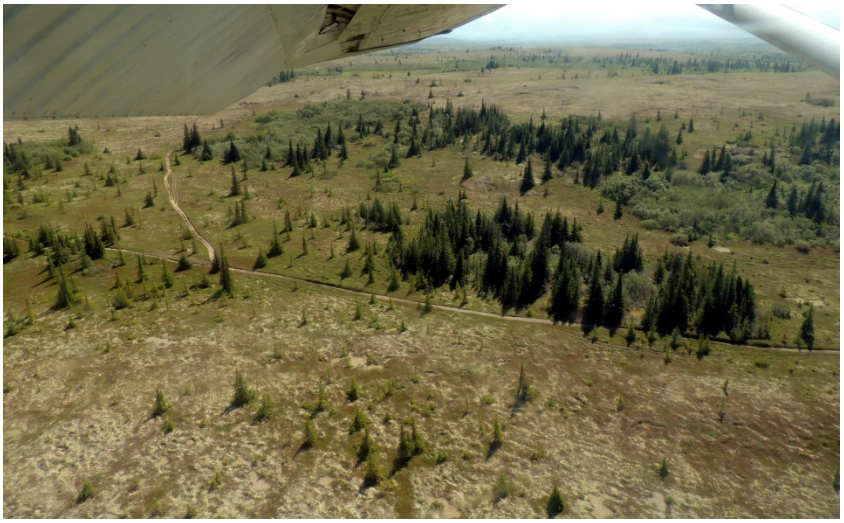

Figure 34: Kokhanok Trail System

The trail system outside of Kokhanok is extensive, and used to travel between communities and to access subsistence areas.

- *Kodiak LRTP:* A LRTP will help to address Kodiak Island transportation needs. While the community has a Borough-funded transportation analysis, it was oriented toward island-wide ferry service, which is not feasible at this time and it did not evaluate other transportation needs.

- *Pile Bay Freight Hub:* Part of the Williamsport Pile Bay Corridor development includes development of Pile Bay as a freight hub. A study would assist to verify what facilities are needed or how recommended improvements can be phased.

- *Medical Evacuation (MEDEVAC) Statistics:* This study would identify the number of MEDEVAC's that occur each year, and analyze how many deaths, if any, are attributable to lack of medical service, either local capability or MEDEVAC capability. This study would show if transportation infrastructure adequately supports MEDEVAC service.

- *River Navigation Hazards:* This study would document existing conditions of hazards along the rivers to help barge operators and system users navigate river waters safely. A map or study of hazards on approaches to barge landings – trees, stumps, sunk

skiffs, etc., has been recommended through public comment. It might be valuable to create a Geographic Information System keyhole markup language (KMZ) file that could be downloaded into Google Earth or some Global Positioning Systems (GPS). Note that the State has assumed mapping responsibilities for the "Capstone" program, which provides GPS mapping for terrain, which is then viewable in real time by aircraft pilots using the technology.

Anticipated airport studies include:

- *Port Lions Airport Master Plan*
- *Unalaska Airport Master Plan (update existing)*
- *King Salmon Airport Master Plan (Update existing, Figure 35)*
- *Dillingham Airport Master Plan (Update existing)*

Master plan studies include an environmental analysis and an airport layout plan.

Figure 35: King Salmon Main Runway

The AASP includes the King Salmon airport among the Southwest Alaska airports slated for Master Plans.

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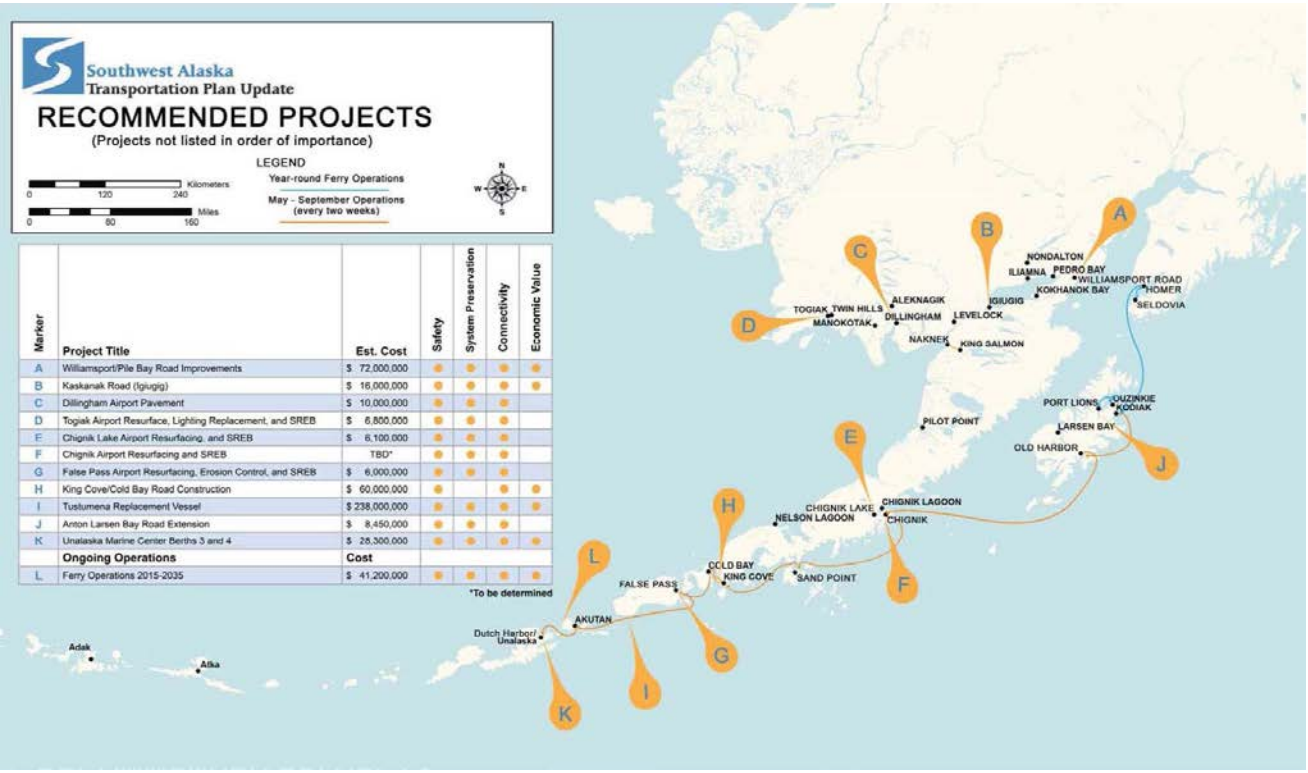
8.0 RECOMMENDATIONS



Marker	Project Title	Est. Cost	Safety	System Preservation	Connectivity	Economic Value
A	Williamsport/Pile Bay Road Improvements	$ 72,000,000	●	●	●	●
B	Kaskanak Road (Igiugig)	$ 16,000,000	●	●	●	●
C	Dillingham Airport Pavement	$ 10,000,000	●	●	●	
D	Togiak Airport Resurface, Lighting Replacement, and SREB	$ 6,800,000	●	●	●	
E	Chignik Lake Airport Resurfacing, and SREB	$ 6,100,000	●	●	●	
F	Chignik Airport Resurfacing and SREB	TBD*	●	●	●	
G	False Pass Airport Resurfacing, Erosion Control, and SREB	$ 6,000,000	●	●	●	
H	King Cove/Cold Bay Road Construction	$ 60,000,000	●		●	●
I	Tustumena Replacement Vessel	$ 238,000,000	●	●	●	●
J	Anton Larsen Bay Road Extension	$ 8,450,000	●	●	●	
K	Unalaska Marine Center Berths 3 and 4	$ 28,300,000	●	●	●	●
	Ongoing Operations	**Cost**				
L	Ferry Operations 2015-2035	$ 41,200,000	●	●	●	●

*To be determined

Figure 36: Recommended Projects

These twelve projects will improve regional transportation.

Table 6 summarizes the projects recommended for development over the next 10 to 20 years, and Figure 36 above illustrates their locations. The columns to the right show which goals we hope to accomplish with each project. Below the table are more detailed descriptions of these projects, which will serve as a starting point for investigations and development. As projects are developed, these scopes may be modified, or replaced with other projects that meet the same goals with less expenditure, or show better cohesiveness with the rest of the system.

Table 6: Recommended Projects

Project Title	($ 2015) Est. Cost	Safety	System Preservation	Connectivity	Economic Value
A. Williamsport Pile Bay Road Improvements	$72,000,000	X	X	X	X
B. Kaskanak Road (Igiugig)	$16,000,000	X	X	X	X
C. Dillingham Airport Pavement Rehabilitation	$10,000,000	X	X	X	
D. Togiak Airport Resurface, Lighting Replacement and SREB	$6,800,000	X	X	X	
E. Chignik Lake Airport Resurfacing and SREB	$6,100,000	X	X	X	
F. Chignik Airport Resurfacing and SREB	TBD	X	X	X	
G. False Pass Airport Resurfacing, Erosion Control, and SREB	$6,000,000	X	X	X	
H. King Cove/Cold Bay Road Construction	$60,000,000	X		X	
I. *Tustumena* Replacement Project	$238,000,000	X	X	X	X
J. Anton Larsen Bay Road Extension	$8,450,000	X	X	X	
K. Unalaska Marine Center	$28,300,000	X	X	X	X

A. *Williamsport Pile Bay Road:* This $72.2 million estimate is based on the Iliamna Regional Transportation Corridor Analysis (State of Alaska DOT&PF, 2007), which focused on preparing the road for industrial use. This existing road would be upgraded to a two-lane, all-season road between Williamsport in Cook Inlet and Pile Bay on Iliamna Lake. Williamsport would have a new port developed at Diamond Point, to circumvent tidal delivery restrictions. With the Kaskanak project, this would establish a corridor between Cook Inlet and Bristol Bay, reducing open water travel by over one thousand miles. Anchorage is Alaska's largest community and economic hub, and is located in Cook Inlet. Bristol Bay is home to three of the top five fishing ports in the nation. More information on the Williamsport Pile Bay project can be found in Appendix M.

B. *Kaskanak Road (Igiugig):* The Igiugig Village Council has submitted a TIGER grant for $16 million to complete 11 miles of 26-foot-wide gravel roadway, two minor bridges, and a barge landing to construct a portage around seven miles of flats along the Kvichak River (Figure 37). This intermodal connection would facilitate use of the Kvichak River as a corridor. Iliamna Lake fishermen could access Bristol Bay fisheries, and less expensive fuel shipment could be provided to communities on Iliamna Lake. A reconnaissance study would provide further cost and benefit analysis.

Figure 37: Igiugig

Igiugig has constructed the initial elements of Kaskanak Road, which is used to portage boats from Lake Iliamna to navigable parts of the Kvichak River.

C. *Dillingham Airport Pavement Rehabilitation:* This rehabilitation project is estimated at $10 million. DOT&PF and the FAA are currently discussing whether the runway needs to be shifted in order to address current runway safety area noncompliance. An interim pavement rehabilitation project will improve pavement condition in the short term.

D. *Togiak Airport Resurface, Lighting Replacement, Snow Removal Equipment Building (SREB)*: Resurface and replace lighting on the runway, taxiway and apron. Replace the SREB.

E. *Chignik Lake Airport Resurfacing, and New SREB*: Resurface runway, replace the SREB. Some survey, geotechnical analysis and engineering have been completed (Figure 38).

Figure 38: Chignik Lake Airport

This plan supports shifting the Chignik Lake runway.

F. *Chignik Airport Resurfacing and SREB*: Resurface and light the runway, taxiway and apron. Expand the existing SREB. The existing SREB is in the transitional surface of protected airspace – an area to remain clear of buildings to improve safety for approaching and departing aircraft. While a new SREB location would be optional, development would impact historically significant resources at the alternate sites, at great expense. At this time the DOT&PF has opted to minimize impacts to historical resources and expand the existing facility.

G. *False Pass Airport Runway Resurfacing, Erosion Control, and Lighting:* Protect runway ends from erosion. Expand the apron and construct a two-bay SREB. Install airfield lighting including a beacon and windsock.

H. *King Cove/Cold Bay Road:* This project is estimated to cost $30 million, and would construct a 17.2-mile, single lane gravel road with turnouts. This project would construct a single-lane gravel road between these communities through the Izembek Wildlife Refuge. Alaska's congressional delegation continues to seek solutions to an access impasse to the Wildlife Refuge with the United States Department of the Interior.

I. *Tustumena Replacement Project:* In 2021 - Replace the *Tustumena* with a "newer" state-of-the-art ferry (*Tustumena* Replacement Project - TRP) and supplement year-round service with the *Kennicott*. The Department is currently designing the TRP (Figure 39). The *Tustumena* currently serves the communities of South Central, Kodiak Island and Southwest Alaska. It is one of two ocean class vessels in the AMHS fleet (Table 7). Because of its size and design, it is the only AMHS vessel that is capable of serving all 13 ports of call between Homer and Unalaska. While the *Tustumena* has a strong safety record, the vessel is aging, requiring more significant lay-up time and higher costs for repair. Retiring and replacing the *Tustumena* with a vessel that is equally, if not more, versatile and seaworthy will provide reliable marine transportation service well into the future for the communities, residents and businesses in South Central, Kodiak Island and Southwest Alaska. *Tustumena's* replacement will be slightly larger in size and capacity, and have a higher service speed. While the larger size could mean more traffic and more revenue, the number of trips will not be increased, and the population of the region is relatively flat.

Figure 39: Rendering of the Tustumena Replacement

This ocean class vessel is currently in design.

Table 7: AMHS Fleet Serving Southwest Alaska

Existing				Annual M&O ($millions)[3]	
	2015-2020	*Tustumena*	40 weeks	$13,197.3	$20.2M
		Kennicott	12 weeks	$7,045.8	
	2021-2030	TRP	40 weeks	$13,966.5	$21.0M
		Kennicott	12 weeks	$7,045.8	

[3] Costs are planning level estimates.

J. *Anton Larsen Bay Road Extension:* This project would extend the Anton Larsen Bay Road (Figure 40) 2.1 miles to ice free waters, improving access for Kupreanof Straight communities. The road would improve safety by providing a land alternative to the current 20-mile open water boat commute from Anton Larsen Bay, around the north of Kodiak Island, and to the City of Kodiak. The route improves emergency response and facilitates mobilization between the east and west sides of the island. This route addresses access restrictions to critical health and economic resources in the City of Kodiak. Along the road are multiple possible gravel sources which, if developed, would provide jobs and support infrastructure development. Finally, the route improves recreational access to the west side of Kodiak Island. The Ouzinkie Native Corporation subsidiary Spruce Island Development Corporation (SIDCO) received a $450,000 legislative grant for planning and design, and is working with DOT&PF to finalize routing and develop a cost estimate. The Ouzinkie Native Corporation has agreed to donate road right-of-way (ROW) to DOT&PF when construction funding is obtained (KIB, 2015).

Figure 40: Anton Larsen Bay Road

One of the regional projects in this plan would extend Anton Larsen Bay Road to ice-free waters of Kupreanof Straight.

K. *Unalaska Marine Center Berths 3 and 4:* As Arctic ice recedes, Unalaska's port of Dutch Harbor is anticipated to supply transiting ships and provide emergency response. Unalaska's location on the Great Circle navigational route, coupled with their existing infrastructure and maritime services (Figure 41), make Unalaska a prime candidate to serve as a crossroads between Arctic and Asian-American routes, serving regional and international economic interests. The UMC has 7 berthing positions. The project replaces Positions 3 and 4 and will provide 940 feet of working dock face at minimum water depth of 45 feet, and will create 1.8 acres of uplands. Position 3 is a wood pile-supported dock that accommodates AMHS, and Position 4 is a steel pile-supported dock with severe erosion problems in areas that cannot be accessed for repair. The deficiencies with Positions 3 and 4 are well-documented in reports from the State of Alaska and inspections conducted by PND Engineers, Inc., the City of Unalaska's engineering firm. This project will add flexibility to the suite of services provided to the marine sector and will expand the capacity for the number of vessels served.

Figure 41: Unalaska

Unalaska's location on the Great Circle route and established maritime support industry position the community as an international crossroads between Asian-American and Arctic shipping routes.

The uplands created will provide staging, storage and area for warehousing. The project will accommodate deeper draft vessels (45 feet) and facilitate increased load capacity for cargo transfers. Current users need the space now; if Arctic development continues, more space will be needed.

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9.0 CONCLUSION

Transportation plans are finalized in an ever-shifting terrain of funding, political will, and project development. This plan is a starting point for project development but current conditions should be carefully evaluated to determine if project assumptions still carry.

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 projects recommended in this plan include a variety of transportation elements and modes in order to provide the flexibility to adapt to funding available. Project development partners will be increasingly important in meeting the transportation needs of the area.

The financial challenges facing the State provide an opportunity to critically evaluate the transportation systems in Southwest Alaska through the planning process. By working together to leverage funding and construct projects, we can keep Alaska moving through service and infrastructure.

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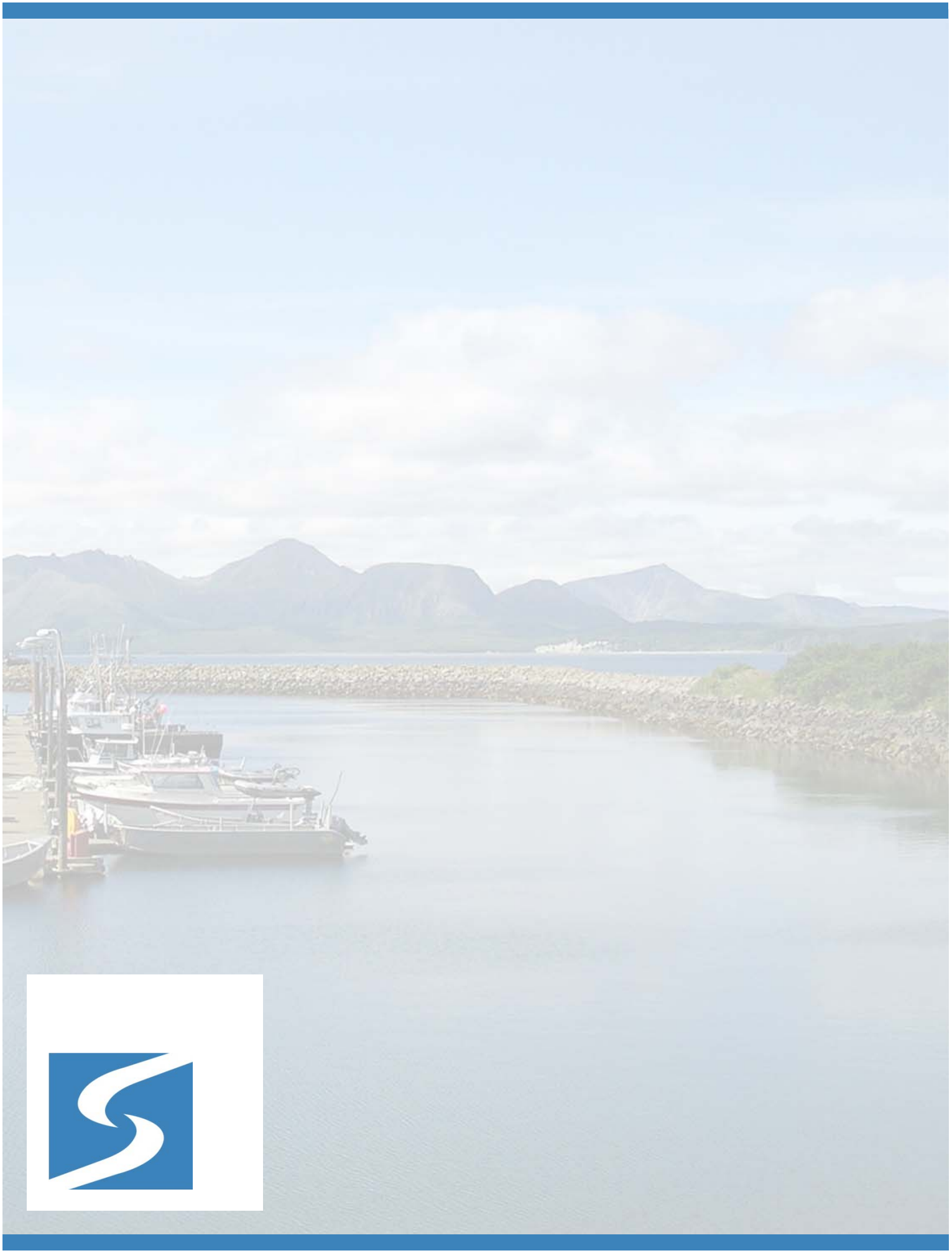

APPENDIX A

Projects Considered

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Appendix A

Criteria for Evaluating Airport and Road Projects

GENERAL

Strategies	
Regionally Significant	Projects located on a facility which serves regional transportation needs. Regional transportation needs include access to other communities, public services, and or other modes of transportation within or outside of the region.
Cost Review	Projects proven to be regionally significant were then reviewed further to investigate the cost of the project and return on the investment for the region and the State of Alaska.
Project Review	Projects proven to be regionally significant, have a return on investment, and meet the goals of this plan were reviewed, scored and prioritized. Projects that were not regionally significant, did not have a return on investment, or did not result in meeting the goals of the plan, were reviewed, but were not scored or prioritized. However, DOT&PF recognizes that these projects are priorities to communities.
Good Governance	Ensure openness, transparency, and accountability during the transportation planning and decision making process.
Criteria Definitions	
Safety and Security	Improves operational safety and security and helps reduce risks for the Southwest Alaska transportation system users.
System Preservation	Preserves and maintains the existing Southwest transportation system.
Intermodal Connectivity	Improves intermodal connections and provides access to airports, barge landings, ports or docks; provides access to fisheries, public services and facilities such as health clinics, hospitals, and schools; and provides more than two communities with connectivity to other communities within or outside the region. For aviation, air service connectivity benefits were evaluated.
Economic Development	Improves economic conditions locally and/or regionally; provides intermodal connections that enhance economic activity, bringing new businesses or resources to the region.

AIRPORTS

Safety and Security	
4	FAA safety mandate (RSA); Regional Class runway.
3	Project for high activity runway, runway serving large aircraft, or addressing safety conflicts; short runway serving large aircraft.
2	Regional Class parallel taxiway or crosswind runway; surface treatment, lighting improvements or project to address safety conflicts for a Community or Local Class airport.
1	Other safety conflicts

System Preservation	
4	Regional Class runway resurfacing; required to maintain air service; required to maintain Part 139 certification.
3	Runway surface for an economic hub or Community Class airport; apron paving; project addressing Community or Local Class airport erosion threat; finishing work started at a Community or Local Class airport.
2	Community or Local Class airport surface treatment, lighting improvement or Snow Removal Equipment; or RSA expansion for an economic hub.
1	Snow Removal Equipment Building

Air service	
4	Regional Class main runway resurfacing or extension; required to maintain air service; or required to maintain Part 139 certification.
3	Main runway resurfacing or extension for an economic hub or Regional Class airport; Regional Class crosswind airport; or runway improvements for an airport serving a community with barge limitations
2	Crosswind runway for Regional Class or economic hub airport; small airport surface treatment, lighting improvement, or project addressing an erosion threat; runway extension for a community with a large population; or Regional Class apron expansion.
1	Regional Class apron resurfacing.

Economic Development	
4	Regional Class runway or apron extension.
3	Runway or apron expansion for a high activity or large population airport; Regional Class runway or apron maintenance.
2	Runway or apron maintenance for a high activity or large population airport; Regional Class crosswind runway; runway or apron expansion for a medium activity or medium population airport.
1	Runway expansion for a local airport with economic potential; other Regional Class projects.

Safety and Security	
4	Critical need with immediate health or safety consequences if not pursued
3	Addresses a safety hazard
2	Improves safety through improved condition
1	Minimal impact on safety

System Preservation	
4	Critical need for rehabilitation, will need reconstruction if delayed
3	Improves or rehabilitation
2	Reconstruction
1	Adds additional infrastructure to be maintained

Intermodal Connectivity	
4	Critical need with immediate health or safety consequences if not pursued
3	Rationalizes existing intermodal facilities, or addresses a shortcoming in an existing transportation corridor
2	Adds new infrastructure to feed other systems
1	Minimal impact on connectivity

Economic Development	
4	Critical need for resource opportunity, must have viable business plan
3	Provides access for new economic activity
2	Supports improved access for regional commerce, including workforce access
1	Minimal impact on economic advancement

SWATP Identified Needs

Surface Projects	Description
Akutan Harbor Access Road	Construct a two-mile, 12-foot-wide single-lane gravel road with 2 foot shoulders between the boat dock and town. The road will have nine turn-outs and a small bridge over Whale Bone Creek. Currently, boat dock users need to take a skiff from the harbor to Akutan.
Alaska Peninsula Highway Bridges (3 bridges)	Rehabilitate or replace Leader Creek Bridge, Paul's Creek Bridge and King Salmon Bridge, on the Alaska Peninsula Highway between Naknek and King Salmon. Improvements may include widening of the structures.
Area Trail Marking (Winter & Summer)	Map and mark existing trails between communities. Repair poor trails, rather than creating new trails around maintenance concerns. Improve existing trails where able.
Atka Harbor	Develop a boat harbor at the City of Atka to accommodate the local fishing fleet, which must currently moor in Adak (90 miles away) or Unalaska (over 300 miles away).
Chignik - Dock and Port Improvements	Uplands work includes riprap face, sheet pile dock, and fendering system. Constructed in 2015.
Chignik Intertie	Construct 21 miles of single lane gravel road to connect the communities of Chignik Bay, Chignik Lake and Chignik Lagoon.
Dillingham - Aleknagik Wood River Bridge	Constructed in 2015.
Inter-community Trail Development	Develop a trail plan for Dillingham and surrounding communities. Mark and map routes for summer and winter travel. Repair poor trails, rather than creating new trails around maintenance concerns. Improve existing trails where able.
Waterfront Access	Plan and construct a shared access plan between private and government owners on the Dillingham waterfront, and "rationalize" existing informal roads and parking areas. Mitigate for erosion.
Aleknagik Road	Rehabilitate and upgrade the road between Dillingham and Aleknagik, to repair damage during Wood River Bridge reconstruction, and to improve road condition for heavy trucks hauling gravel.
Ekuk to Clarks Point Road	Local project.
Ekwok Landfill Road and Bridge	Local project.
Igiugig-Kaskanak Road	Construct a portage around the Kvichak River "flats," which currently limit access for vessels with drafts over two feet. The seven mile portage would include boat handling facilities at both ends. This connection is a part of developing an Anchorage to Bristol Bay regional corridor.
Iliamna Lake Barge Landing Upgrades	Undefined scope. USACE report did not specify improvements required.
Iliamna to Nondalton Road and Bridge	Design of this road and bridge has been put on hold due to local opposition and limited funding.
King Cove/Cold Bay Road	Construct a 17.2-mile, single lane road with turnouts. US Secretary of Interior has declined access through the Izembek Wildlife Refuge, Alaska leadership continues to advocate for it.
Kodiak - Anton Larsen Bay Road Extension	New construction of 2.1 miles of road from the current terminus of Anton Larsen Bay Road to Craig Point, to access year-round ice free waters of Kupreanof Straight.
Breakwater	Build breakwater to reduce swells into Kodiak, to aid in protecting the container dock.
Dock Improvements	The AMHS needed improved facilities in Kodiak. Rather than the replacement dock that was proposed, the State was able to design improvements to the existing dock. These improvements were constructed in 2015.
Chiniak Highway at Sargent Creek	Spot drainage improvements for bank stabilization, armoring, and re-channeling as needed to stop roadway flooding.
East Elementary Traffic Flow Improvements	Parking lot and street design to accommodate increased use, separate pedestrians and vehicles, and improve bus loading.
LRTP	Develop a comprehensive surface transportation plan for Kodiak Island.
Mill Bay Beach Access Upgrade	Local need, access to a popular recreational site.
Road to Launch Complex	The 2004 plan recognized the complex as a possible source of economic development, but the complex has fallen on hard times, and is considering privatization.
Service Area Road Improvements & Paving	Local need; paving 26 miles of road throughout the community.
Shelikof Street Improvements	This project would rehabilitate and reconstruct the sidewalk between Jack Hinkel Way and Marine Way, including improved lighting, landscaping, benches, signage, and a walkway along the harbor side of the street. It would also construct a 30-space bulkhead parking area on the south side of Shelikof Street adjacent to St. Paul Harbor – the walkway will go between parking and the harbor.
Manokotak to Dillingham Road	Manokotak and Dillingham are 22-straight line miles apart. It is unknown the actual length of road needed. Manokotak is balancing economic advantages with loss of controlled access.

SWATP Identified Needs Continued

Surface Projects	Description
Naknek - Dock Bypass Road	Construct a road from the Alaska Peninsula Highway to the Naknek dock, to reroute general access traffic around the freight yard, rather than through it.
Pedestrian Path	Develop a 3.5-mile pedestrian path from Leader Creek to Airport Road to provide access for transient fish processors. Because of ATVs on the shoulders, pedestrians currently walk on the highway.
Port, Phase II	Construction of a second open cell high capacity sheet pile dock to replace the existing pile-supported platform dock built in 1982. Naknek is consistently one of the top five fishing ports in the nation.
Port, Phase III	Dock site improvements to better transfer and accommodate freight, including upland container storage, asphalt surfacing, relocation of some dock structures, a new boat ramp, safety fencing, improved utilities, expanded dredging footprint, and a maintenance facility. Naknek is consistently one of the top five fishing ports in the nation.
South Naknek to Chigniks Intertie	Construct a 225-mile road from Chignik Bay to South Naknek. Consider a deep water port in Chignik Bay.
Naknek to South Naknek Crossing	This proposed crossing would improve South Naknek access to facilities in Naknek and King Salmon. The crossing is too expensive to pursue in the foreseeable future.
Sand Point Paving	Rebuild 3.5 miles of Sand Point Airport Road. Corrects deficient condition transferred from the State to the community.
Unalaska - Bridge Improvements	Undefined scope - not sure what previous planning proposals intended to accomplish.
Captains Bay Road Improvements	Utility improvements, redesign and repaving road serving commercial port activities.
City Dock Improvements	A proposal to replace Position 1 received a 2005 federal ear mark for $7.5 million, but Unalaska has not used it. The city's Capital Improvement Plan lists improvements for Positions 3 & 4.
Marine Center Project	Improvements to positions 3 and 4, to improve docks and uplands.
Williamsport - Navigation Improvements	Improvements would be considered in development of the Williamsport Pile Bay Road project, described above.
Pile Bay Road & Port Improvements	Upgrade the Williamsport Pile Bay Road to a two-lane, all-season road. Port improvements at Diamond Point would facilitate barge landings at low tides. Analyze and construct a landing craft landing and boat haul-out at Pile Bay. This connection is a part of developing an Anchorage to Bristol Bay regional corridor.

SWATP Identified Needs

Aviation Projects	Description
Adak Airport - Runway Resurfacing	Resurface paved crosswind runway.
Main Runway Resurfacing	Resurface paved main runway.
RSA Expansion	Expand runway safety area.
Aleknagik - New Seaplane Base	Move seaplane operations to a new seaplane base to mitigate conflict between boat and plane traffic at Wood-Tikchik State Park Recreation Site and allow for more diverse services.
Chignik - Improvements	Install lighting on the airport runway, taxiway and apron. Resurface 2600' x 60' runway, taxiway and apron with 9" of new gravel. Extend existing 1 bay SRE building to add 1 additional bay. Building will be heated and on a concrete pad. Existing structure will be renovated, as required, to ensure proper insulation throughout. A small concrete pad will also be installed at the building entrance.
Chignik Lagoon Airport - Resurfacing	Resurface the existing 1,600' X 60' gravel runway and construct a small apron.
Chignik Lake Airport - Improvements	Extend, widen and resurface the existing 2,800' x 60' gravel runway to 3280' x 75'; install MIRLS; expand safety areas as practicable; conduct ALP update. Construct a replacement SRE Building.
Cold Bay Apron and Taxiway Project	This project would provide terminal facilities to surrounding villages around Cold Bay and support the system as a whole for flights that divert to Cold Bay for emergencies.
Dillingham - Airport Crosswind Runway	Construct approximately 2000' gravel crosswind runway to accommodate general aviation aircraft.
Airport Pavement Rehabilitation	Rehab Runway 14-32 paved surface and replace lighting system.
Airport RSA, Runway Shift and Extension	Complete final stage of runway safety area expansion, which requires shifting the runway and expanding the runway safety area.
Airport Parallel Taxiway	Construct a paved parallel taxiway with intermediate runway access taxiways.
False Pass Airport - Improvements	Resurface with gravel, erosion control at runway ends, and a new Snow Removal Equipment Building.
Iliamna Airport - Waterlane	Dredge a North-South floatplane landing and takeoff lane connecting Pike Lake with two tundra ponds, provide lease lot areas, acquire property around the lakes.
Apron Expansion	Expand paved apron for business jet operations.
King Salmon Airport - Parallel Taxiway	Construct a paved parallel taxiway with intermediate runway access taxiways for Runway 12-30.
Terminal Road (Main Street) Relocation	Relocate and reconstruct Main Street, the airport road serving the terminal area lease lots.
Kodiak Airport - Rehabilitation	Rehabilitate pavement of the general aviation apron and its access taxiway.
Apron and Lease Lot Expansion	Expand the gravel apron and lease lot area.
Runway 11-29 Rehabilitation	Rehabilitate Runway 11-29 pavement when required in the next 5 - 10 years.
Trident Basin Improvements	Develop an apron and lease lot area within the rock quarry adjacent to the existing pull out ramp and replace the oldest seaplane float.
Kokhanok Airport - Resurfacing	Regrade and recompact gravel airfield. Was recently resurfaced but surface is soft and needs regrading and compaction.
Manokotak Airport - Runway Extension	A new airport with a 3,300 foot runway was built in 2006. The airport layout plan shows an ultimate 4,000 foot gravel runway for this larger community with higher traffic levels.
Naknek Airport - Resurfacing and Lighting	Resurface with gravel and replace lighting system.
Nelson Lagoon Airport - Improvements	Replace lighting system and snow removal equipment building.
New Stuyahok Airport - Runway Extension	A new airport with a 3,200 foot gravel runway was build in 2011. The airport layout plans shows an ultimate extension to 5,000 feet for this larger community with higher traffic levels.
Nondalton Airport - Runway Improvements	Resurface and investigate feasibility of extending the 2800 foot gravel runway to 3,000 to 3,500 for fuel and freight haul by air for this community without direct barge access. Fuel delivery is by air only and is limited to summer months.
Old Harbor Airport - Improvements	Extend the 2,750' gravel runway to 4,700', resurfacing, lighting and Snow Removal Equipment Building.
Port Alsworth - New Airport	Construct a new public airport at Port Alsworth.
Port Lions Airport - Runway Improvement	Relocate or extend the Port Lions airport. Construct apron, snow removal equipment building, lighting system, access road and taxiway, land acquisition, and other minor improvements as needed. A planning study will likely be needed to determine the preferred solution.
South Naknek Airport - Rehabilitation	Rehabilitate the runway and crosswind runway by filling dips and swales and reconstructing segments that are soft or settling and correct runway safety area deficiencies.
Togiak Airport - Improvements	Gravel resurfacing of both runways, taxiways, and apron. Replace runway lighting system to main runway and provide runway lighting system for crosswind runway.
Unalaska Airport - Apron Reconstruction	Reconstruct apron and connecting taxiway.
Torpedo Building Demolition	Demolish the Torpedo Building on the apron which is deteriorating and is creating safety hazards for aircraft and airport users.

APPENDIX B

Public Involvement Documents

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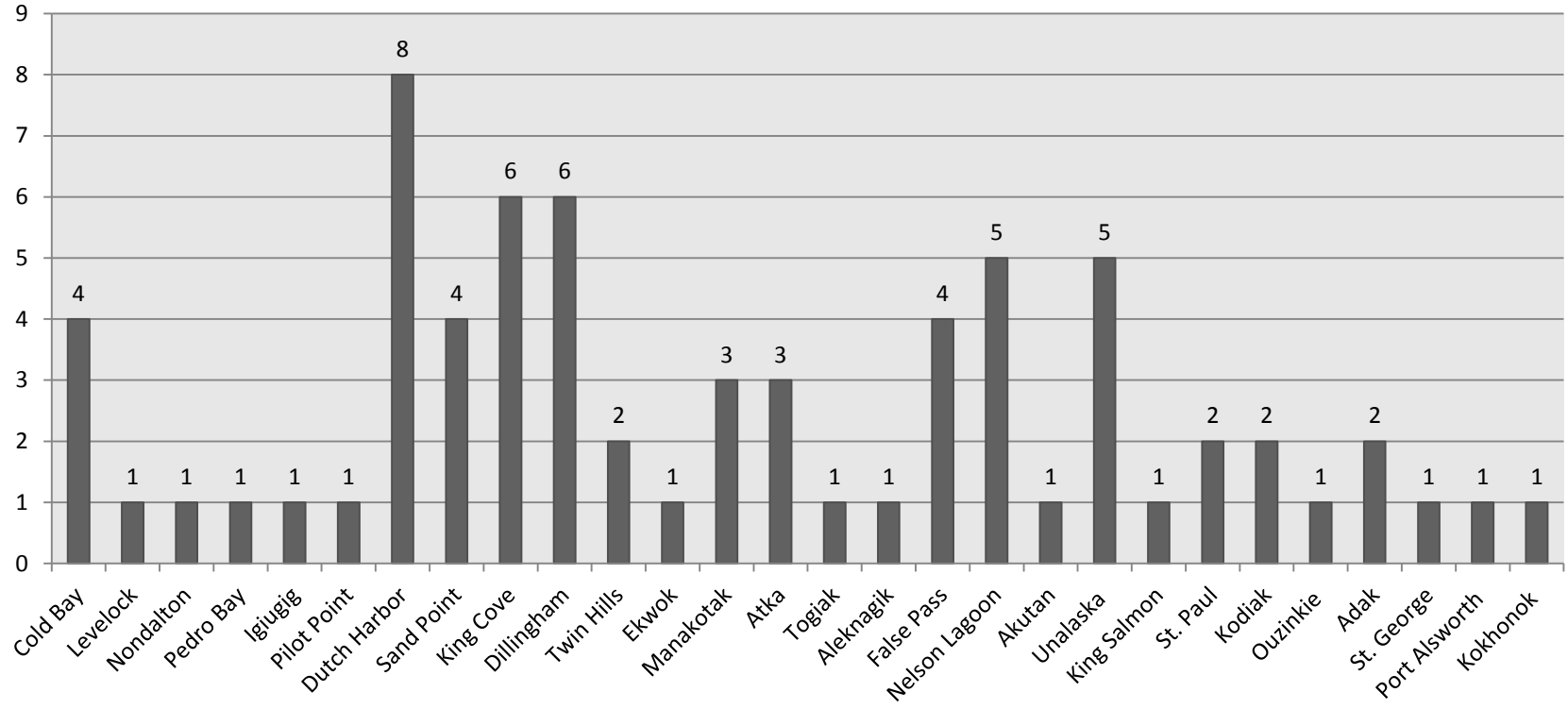
Appendix B: Public Involvement Materials

Note that this appendix is formatted for viewing on a computer. A version formatted for double-sided printing, long edge bind, is also available.

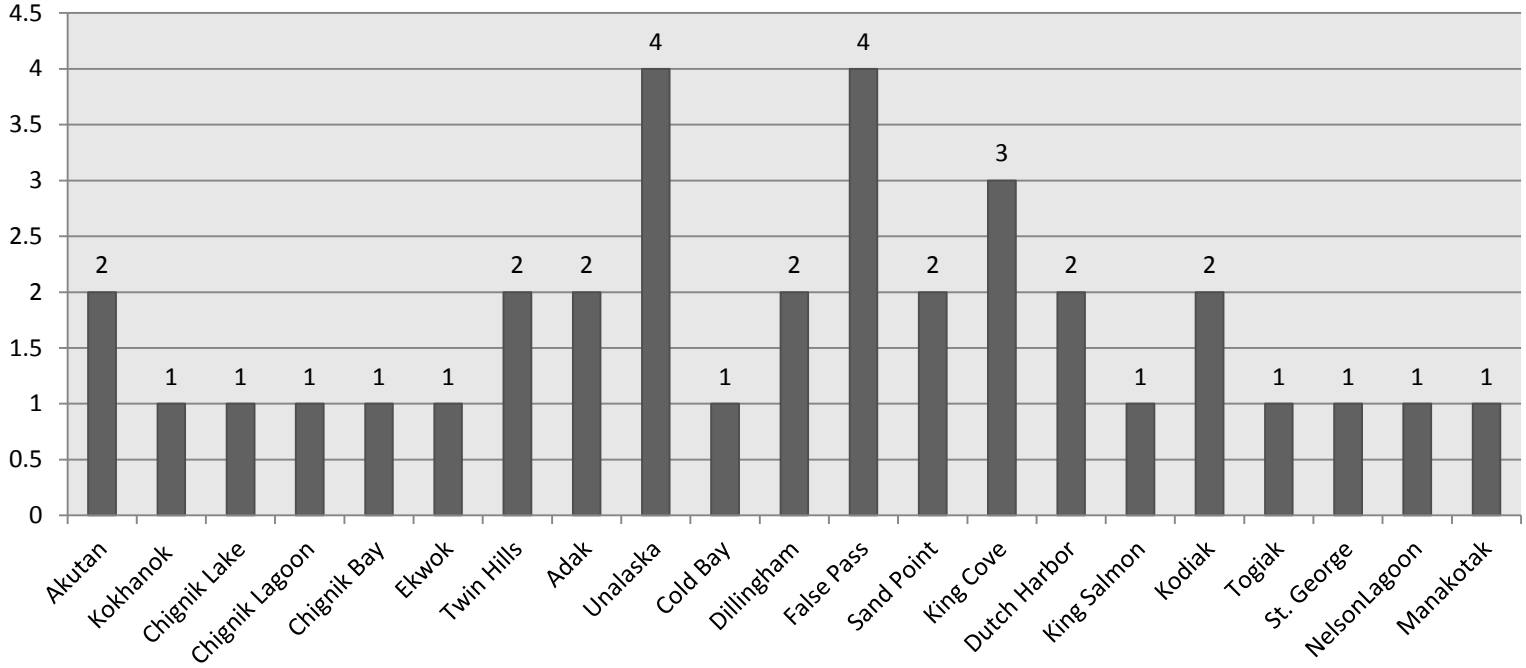
CONTENTS

Top Airports Needing Runway Extensions
Survey Responses



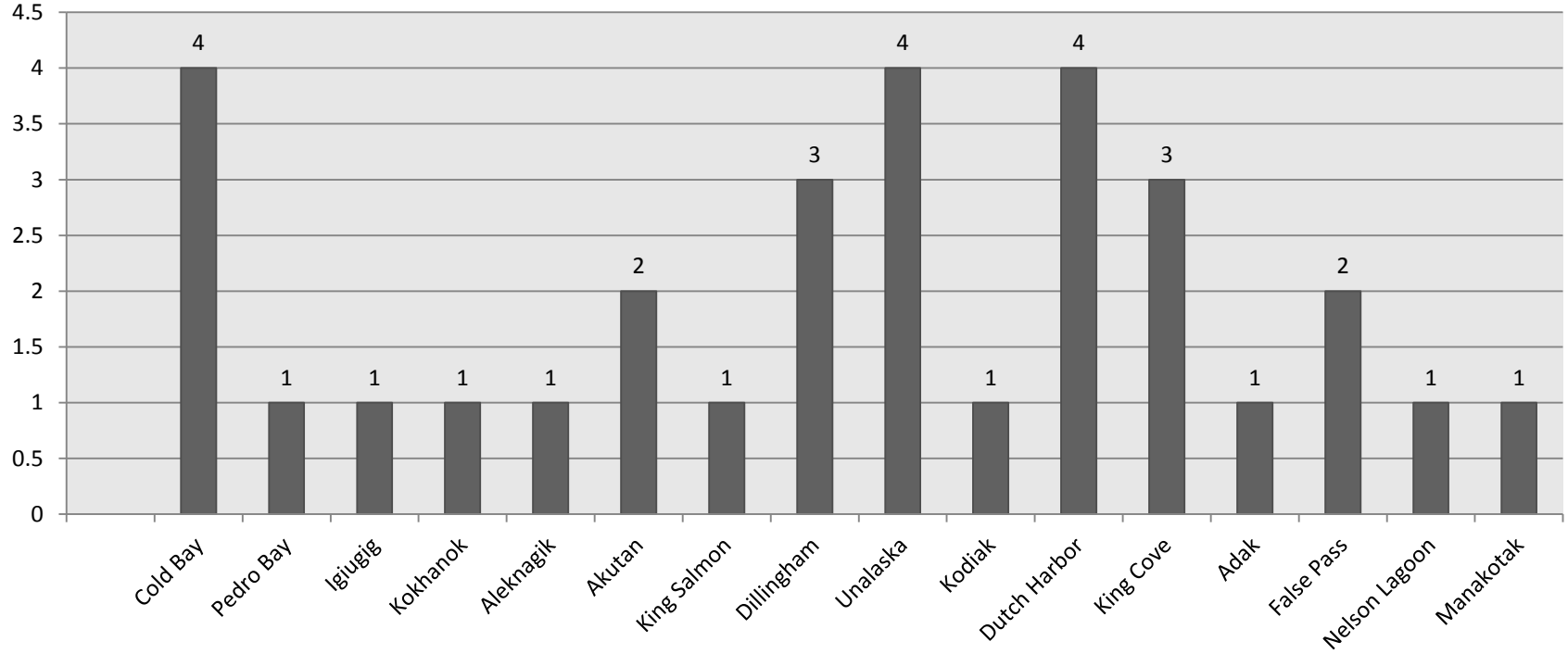
Survey responses were collected at the Southwest Alaska Municipal Conference (SWAMC) and the Tribal Transportation Symposium; and were also collected via hard copy, project website and Facebook.

Top Airports Needing Runway Approaches or Navigation Aids
Survey Responses



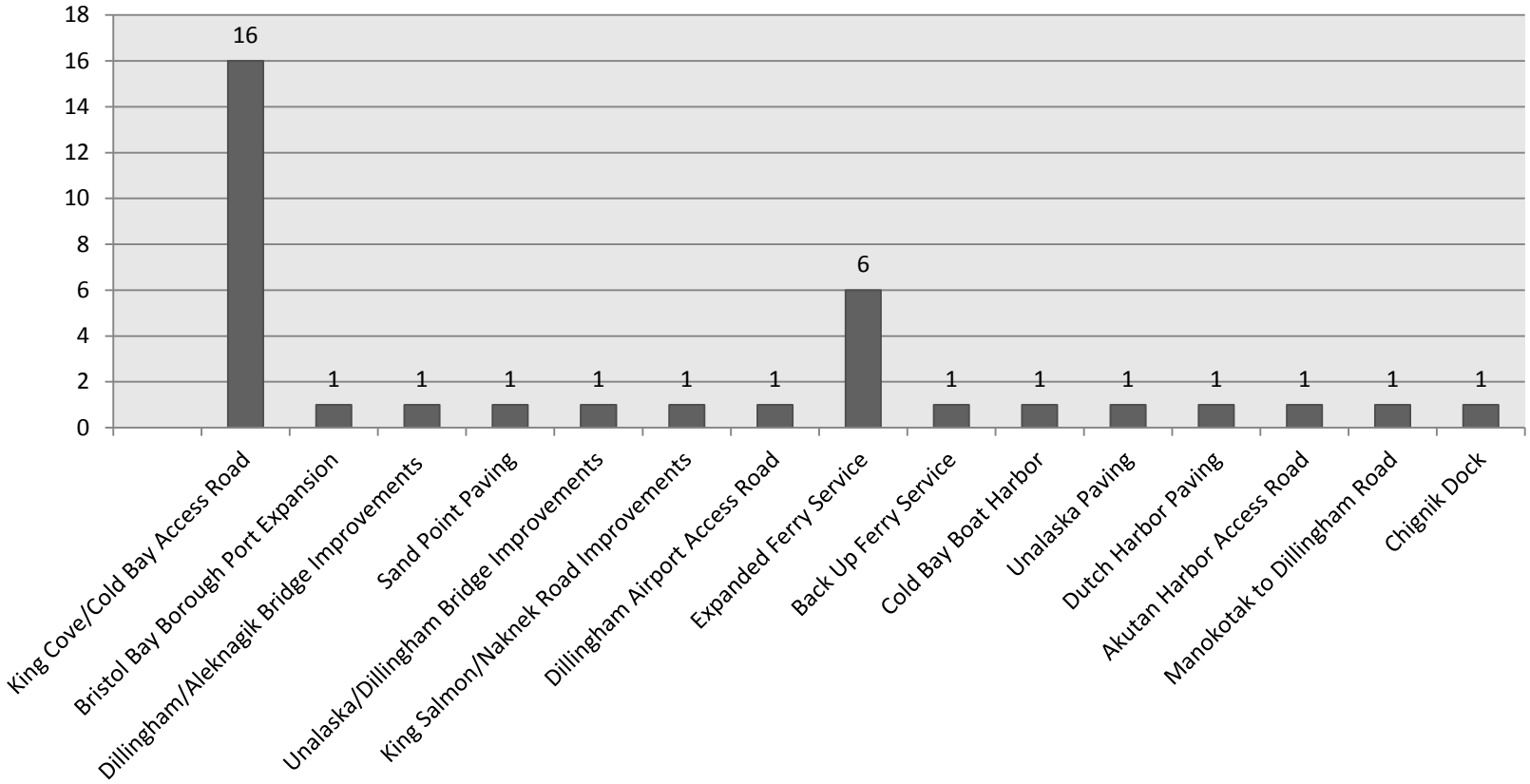
Survey responses were collected at the Southwest Alaska Municipal Conference (SWAMC) and the Tribal Transportation Symposium; and were also collected via hard copy, project website and Facebook.

Top Three Airport Improvement Projects Needed in SW Alaska
Survey Responses



Survey responses were collected at the Southwest Alaska Municipal Conference (SWAMC) and the Tribal Transportation Symposium; and were also collected via hard copy, project website and Facebook.

Top Three Regional Land Transportation Priorities in SW Alaska
Survey Responses



Survey responses were collected at the Southwest Alaska Municipal Conference (SWAMC) and the Tribal Transportation Symposium; and were also collected via hard copy, project website and Facebook.

Alaska Department of Transportation & Public Facilities

Southwest Alaska Transportation Plan

Jennifer Witt, AICP, Central Region Planning Chief
Bart Rudolph, Central Region Planning Manager

August 2014

Outline

- What has happened since last meetings for SW Plan Update?
  - Federal Highway Bill Reauthorized in 2012 – impacts to program
  - Statewide Long Range Transportation Plan Update now underway
  - Federal Aviation Administration priorities – impacts to program

2

Moving Ahead for Progress in the 21st Century (MAP-21) Highway Reauthorization

3

MAP-21

- 2-year highway and transit bill for Federal years 2013 & 2014 – now extended through May 2015
- Relies on National General Fund appropriations and other funding transfers; no new taxes or fees to sustain level funding
- Significant new policies, including some streamlining of difficult federal processes
- Numerous other policy changes

4

MAP-21 - National Performance Goals

- Safety
- Infrastructure condition
- Congestion reduction
- System reliability
- Freight movement & economic vitality
- Environmental sustainability
- Reduced project delivery delays

5

MAP-21 – National Priorities

- National Highway System (NHS)
- Highway Safety
- Meeting performance standards on NHS
- Urban areas > 200,000 population

6

MAP-21 - Performance Mandate

- FHWA to set National Highway System (NHS) Performance Measures for
  - Safety
  - Pavements and Bridges
  - Freight Mobility
  - Congestion
  - System Performance
- States to set performance targets
- Penalties if NHS targets not met

7

MAP-21 - Funding

- Highway funding down from $520 M in 2012 to $484 M in both 2013 & 2014 (~7% decrease)
  - Similar reduction felt in all other states
- Significant streamlining of funding categories
- Highway Safety Improvement Program (HSIP) doubles for Alaska
- Increased emphasis on NHS means less available for Community Transportation Program (CTP); no new projects being considered

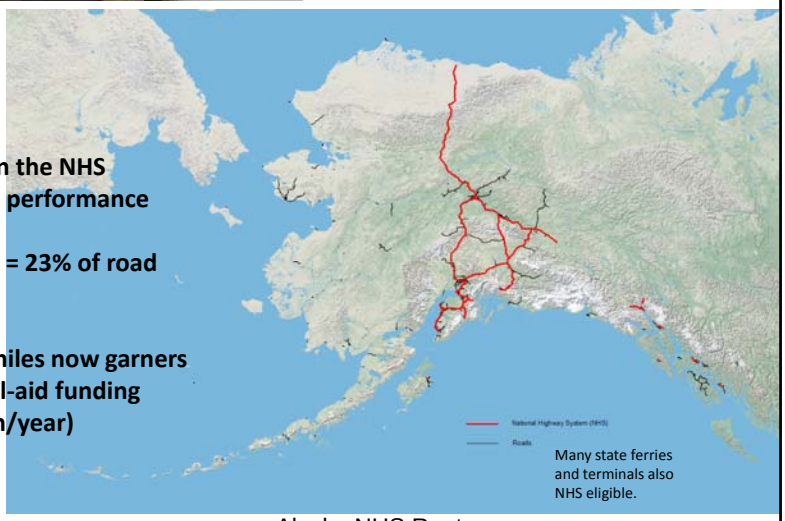
8

MAP-21

Emphasis is on the NHS condition and performance

NHS in Alaska = 23% of road miles

23% of road miles now garners 57% of federal-aid funding (~$238 million/year)



Alaska NHS Routes

9

Alaska Statewide Long Range Transportation Plan

LRTP

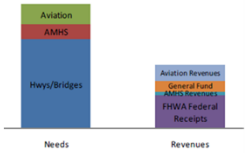
http://dot.alaska.gov/stwdplng/areaplans/lrtpp2014/documents.shtml

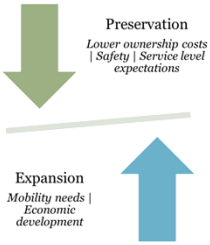
HDR PARSONS BRINCKERHOFF

10

What's Covered in the LRTP?

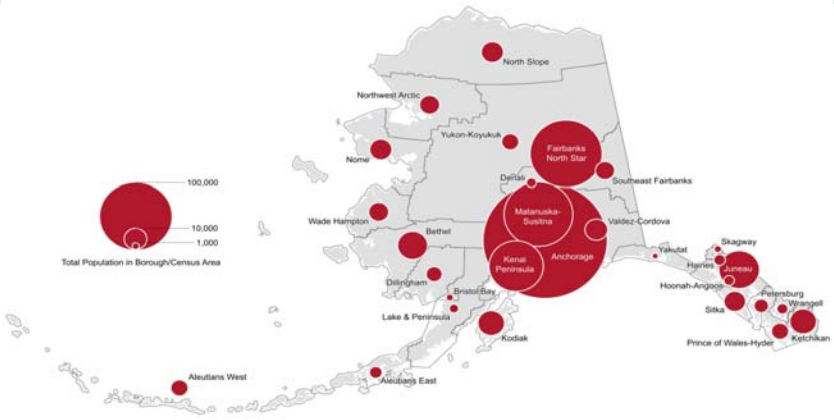
- Provides future direction
- Identifies:
  - Short-term prioritized projects – 10 years
  - Long-term needs
  - Policies
  - Strategies
  - Funding opportunities
- Aligns with Governor's priorities
  - Live within our means
  - Focus on our priorities
  - Maintain what we have
  - Finish what we have started
  - Keep Alaska Moving to Keep Alaska Strong





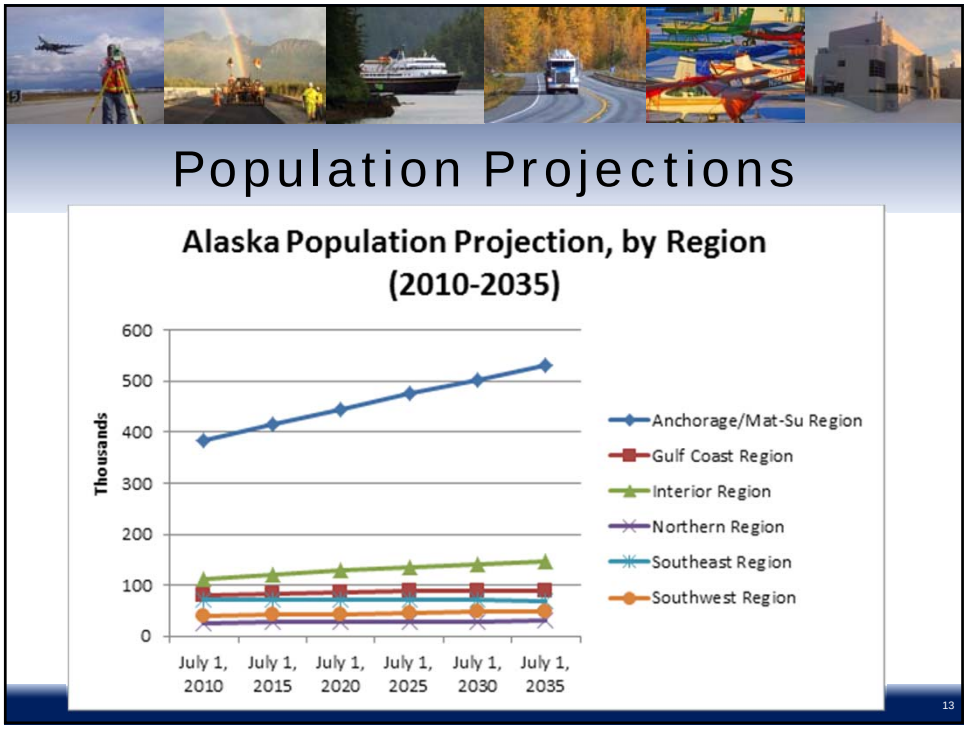
11

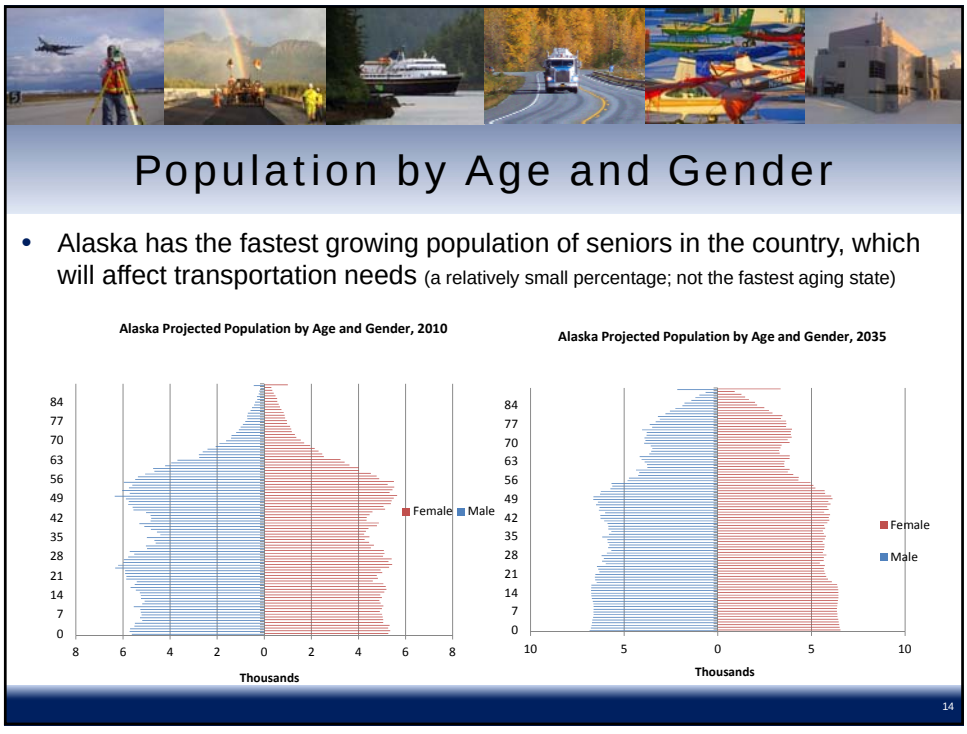
Total Population by Borough/Census Area



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section; 2010 U.S. Census

12

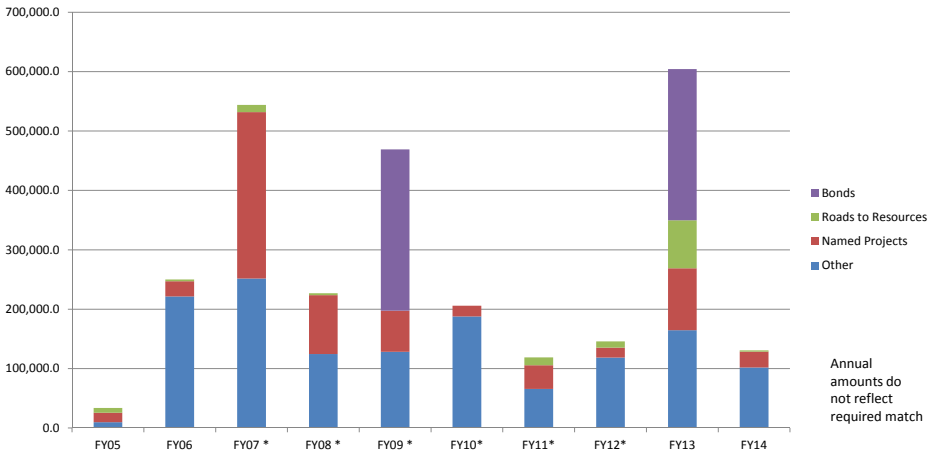

Population Projections
Alaska Population Projection, by Region (2010-2035)
Thousands
600
500
400
300
200
100
0
July 1, 2010
July 1, 2015
July 1, 2020
July 1, 2025
July 1, 2030
July 1, 2035
Anchorage/Mat-Su Region
Gulf Coast Region
Interior Region
Northern Region
Southeast Region
Southwest Region
13


Population by Age and Gender
• Alaska has the fastest growing population of seniors in the country, which will affect transportation needs (a relatively small percentage; not the fastest aging state)
Alaska Projected Population by Age and Gender, 2010
84
77
70
63
56
49
42
35
28
21
14
7
0
8 6 4 2 0 2 4 6 8
Thousands
Female
Male
Alaska Projected Population by Age and Gender, 2035
10 5 0 5 10
Thousands
Female
Male
14

Historical Highway Funding and Forecast

15

State Capital Program for Transportation - Trends



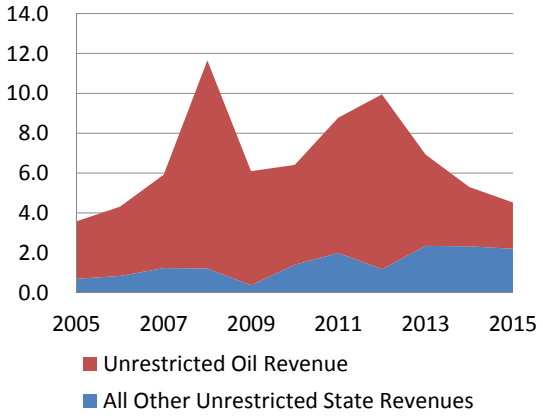
16

State General Fund Forecast

The largest component of unrestricted oil revenues is the Oil & Gas Production Tax

The Alaska Department of Revenue forecasts Oil & Gas Production Tax will fall from $4.6 billion in fiscal 2013 to $2.3 billion in 2015

Overall, total unrestricted revenues are predicted to fall from $6.9 billion in fiscal 2013 to $4.2 billion in 2023.



Source: Alaska Department of Revenue, Revenue sources book 2014 Spring (http://www.tax.alaska.gov/programs/documentviewer/viewer.aspx?1048r)
Box 2 source: Table 2-2, subtotal petroleum taxes

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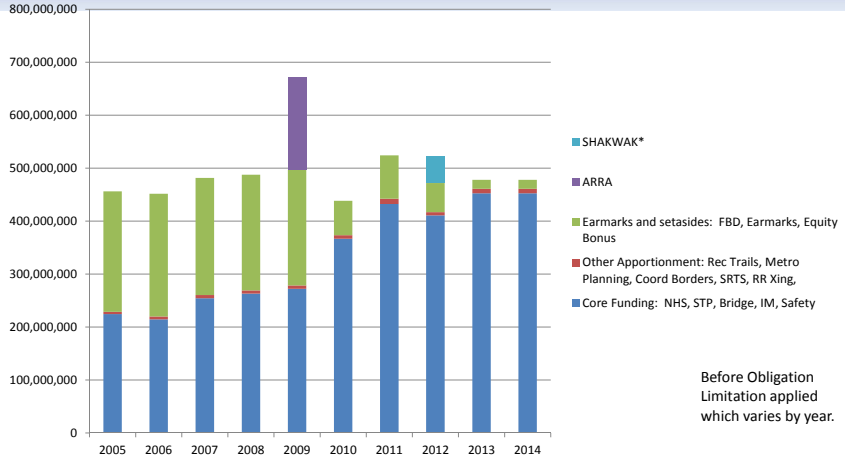
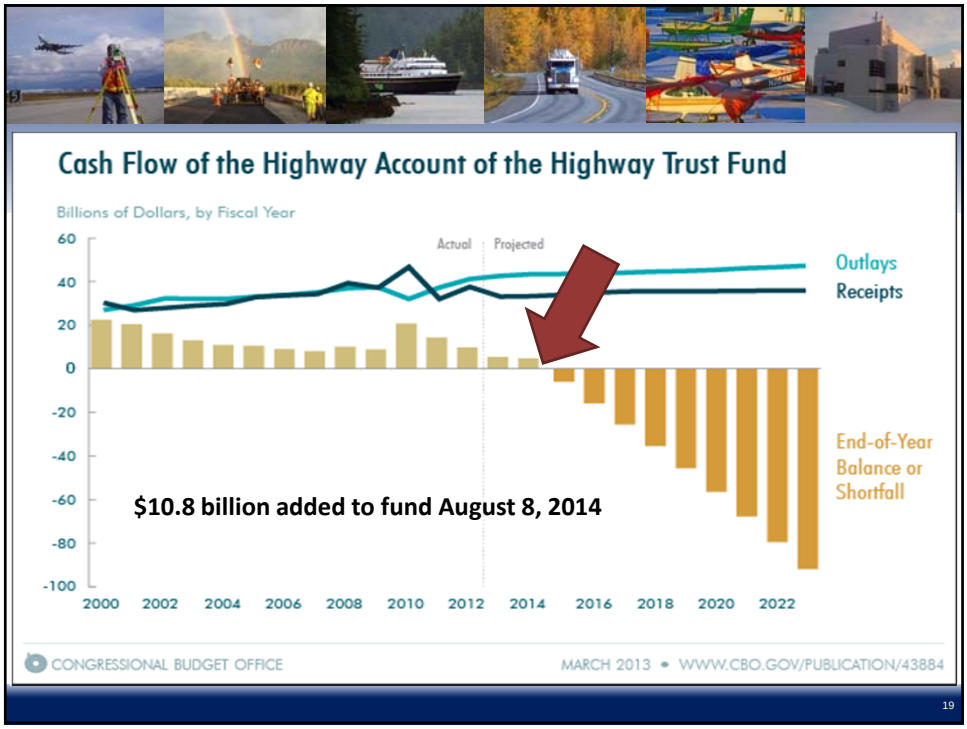
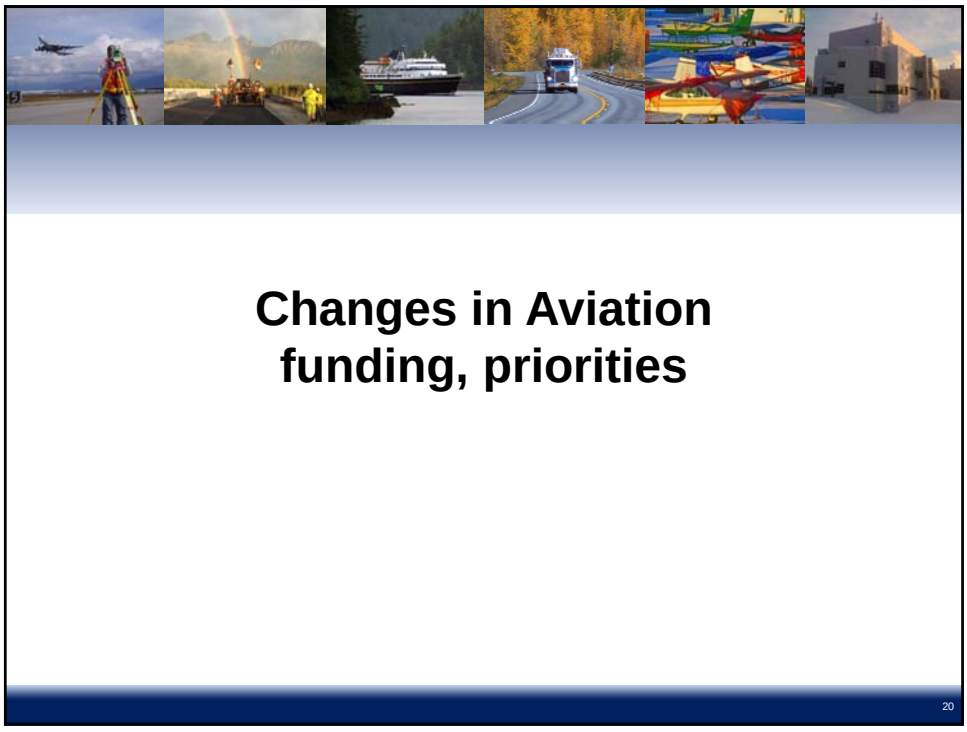
Federal Highway Program



Before Obligation Limitation applied which varies by year.

18


Cash Flow of the Highway Account of the Highway Trust Fund
Billions of Dollars, by Fiscal Year
Actual
Projected
Outlays
Receipts
End-of-Year Balance or Shortfall
$10.8 billion added to fund August 8, 2014
60
40
20
0
-20
-40
-60
-80
-100
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
CONGRESSIONAL BUDGET OFFICE
MARCH 2013 • WWW.CBO.GOV/PUBLICATION/43884
19


Changes in Aviation funding, priorities
20

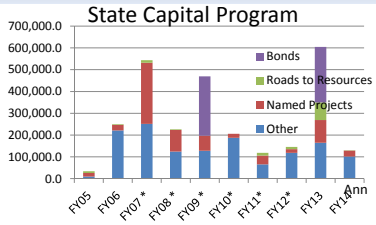
Impacts to Aviation

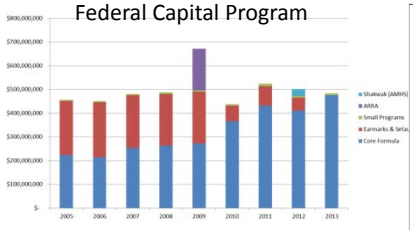
- National focus on Runway Safety Areas (RSAs), pavement condition – impacts funding for Alaska's airports
- Addition of cost effectiveness criterion to Alaska's project selection impacts ability to address airport needs in small population communities

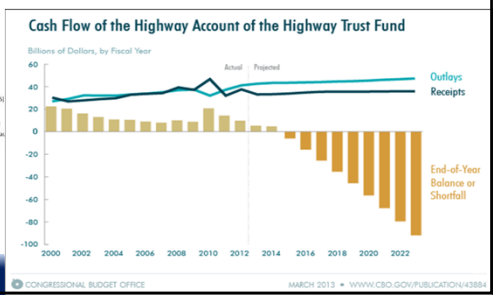
21

We live & work in interesting times

Planning for the future is a challenge when funding is so uncertain







As we move forward with Plan…

- Federal Highway program unlikely source to implement much of the Plan's recommendations in short term (5-10 years)
- Focus on addressing long term needs that address regional mobility
- Strategies:
  - Prioritize needs over wants
  - Reduce scope and expensive add-ons
  - Focus on active projects; limit new starts

23

How to Follow DOT&PF

- Gov.Delivery

- **www.dot.alaska.gov**
- Sign up for free
  - Choose topics to be informed of
  - Choose method to receive: text or email

24

Southwest Alaska Transportation Plan Update

Lake and Peninsula Borough Planning Commission/Assembly Workshop

August 18, 2014

Outline

- Introduction
- What work was included in Phase 1?
- Where are we now?
- What else will happen in Phase 2?
- What is the relationship between this and other long range transportation plans and spending plans?
- Schedule

SWATP Project Team

Joselyn Biloon
Kenai/Kodiak Area Planner & Project Manager
269-0508
joselyn.biloon@alaska.gov

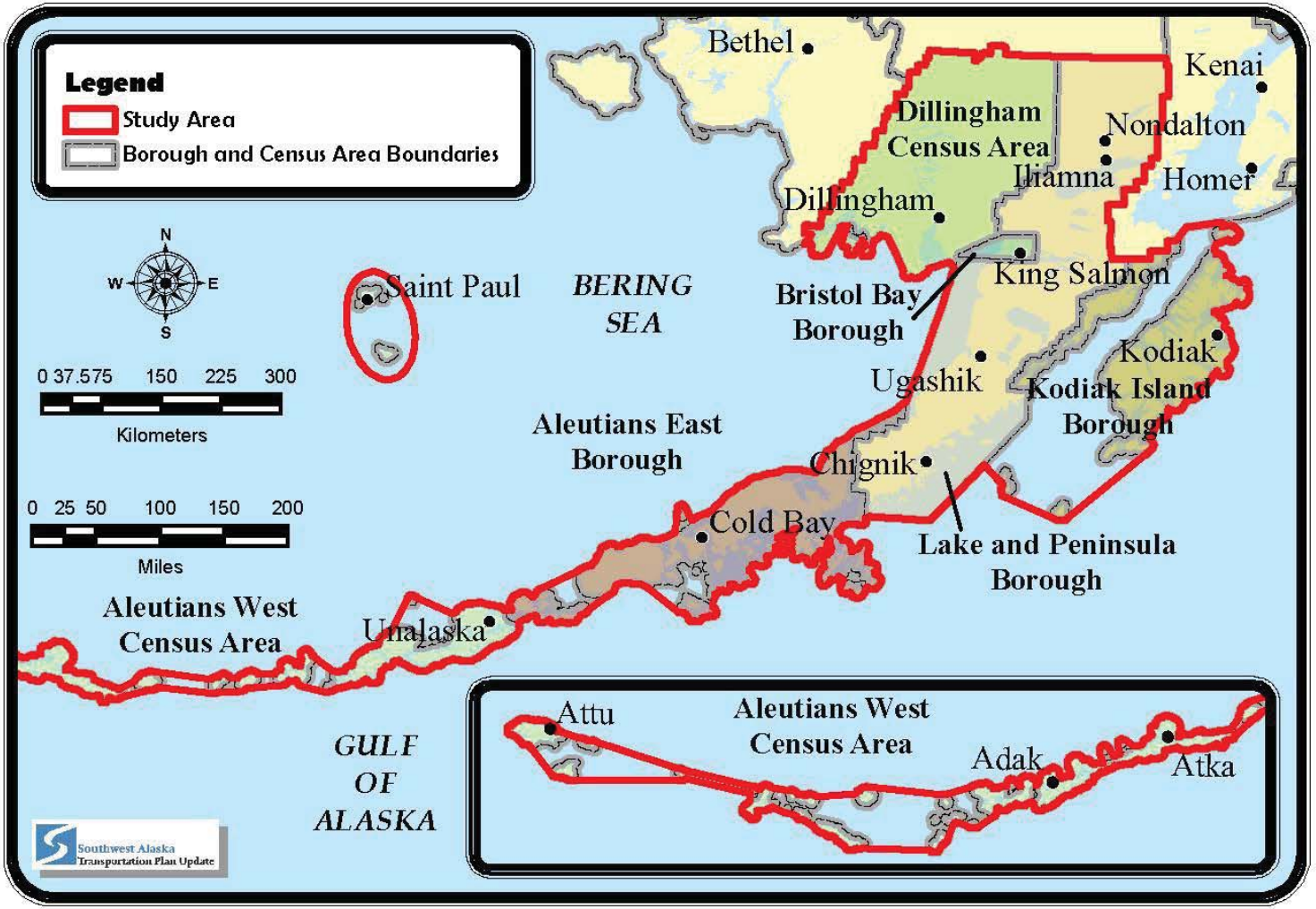
Melanie Nichols
Southwest Area Planner
269-0509
melanie.nichols@alaska.gov

Bart Rudolph
Aviation Planning Manager
269-0519
bart.rudolph@alaska.gov

Sara Mason
Transportation Planner
562-2000
smason@dowlhkm.com

Rebecca Rauf
Alaska Aviation System Planner
269-8654
rebecca.rauf@alaska.gov

SWATP Study Area



SWATP Purpose

"The purpose of the Southwest Alaska Transportation Plan is to guide transportation development decisions to maximize the public benefits from public transportation investments in Southwest Alaska."

What's been done since the 2004 SWATP?

Recommendations implemented/underway

- **Williamsport to Pile Bay Road** - improvements to road; new bridge over Iliamna River in design
- **Akhiok, Port Lions Airports** – reconstruction projects in design
- **Chignik Public Dock** – design underway; funded in STIP
- **Akutan** – new airport

What's been done since the 2004 SWATP?

Recommendations implemented/underway

- **Naknek/South Naknek/King Salmon Road Link/Area Aviation Needs** – Alaska Peninsula Highway improvements underway; bridge improvements being designed
- **Kodiak Road to Launch Complex** – road improved, paved
- **Dillingham-Aleknagik Road/ Wood River Bridge** – under construction
- **King Cove-Cold Bay Connection** – partial completion

Outline

- Introduction
- **What work was included in Phase 1?**
- Where are we now?
- What else will happen in Phase 2?
- What is the relationship between this and other long range transportation plans and spending plans?
- Schedule

Elements of Phase 1

- Introduction to the plan and the region
- Inventory by mode
  - Aviation
  - Marine
  - Land
- Forecasts
- Identification of concerns and issues

General Concerns and Issues

- Economic opportunities
- Cost of living
- Hazard mitigation
- Intermodal transportation
- Transportation funding

Aviation Concerns and Issues

- Federal programs
- Costs
- Capacity and reliability
- Economic impacts
- Technology
- Hubs
- Runway length/approaches
- Other infrastructure
- Maintenance

Marine Concerns and Issues

- Bristol Bay ferry service
- M/V Tustumena maintenance or replacement
- AMHS congestion points
- Emergency response
- Technology
- Capacity and reliability
- Economy
- Hubs
- Infrastructure
- Maintenance and improvements

Land Trans. Concerns and Issues

- Road maintenance
- Intermodal and community access
- Bridges
- Trails
- Transit

Lake and Peninsula Borough Planning Commission/Assembly Workshop, August 18, 2014
Consultant presentation

Outline

- Introduction
- What work was included in Phase 1?
- **Where are we now?**
- What else will happen in Phase 2?
- What is the relationship between this and other long range transportation plans and spending plans?
- Schedule

Phase 2 So Far

- Solicited public input on regional transportation priorities
- Begun drafting goals and objectives
- Begun compiling previously employed criteria for project evaluation
- Begun developing a list of regionally significant transportation projects

Outline

- Introduction
- What work was included in Phase 1?
- Where are we now?
- **What else will happen in Phase 2?**
- What is the relationship between this and other long range transportation plans and spending plans?
- Schedule

Phase 2 Through Completion

- Continue public input on regional transportation priorities
- Solidify goals and objectives
- Create a matrices for project prioritization by mode
- Finalize project lists by mode
- Evaluate and prioritize projects
- Draft SWATP document
- Finalize SWATP document

Outline

- Introduction
- What work was included in Phase 1?
- Where are we now?
- What else will happen in Phase 2?
- **What is the relationship between this and other long range transportation plans and spending plans?**
- Schedule

*Let's Get Moving 2030**

Key Policies Identified in the Statewide Long Range Transportation Plan:

- System development
- System preservation
- System management and operations
- Economic development
- Safety
- Security
- Environment and quality of life
- Good government

** Statewide Long Range Transportation Plan update is underway*

Relationship to Other LRTPs

- Statewide Long Range Transportation Plan
- Statewide Modal/System Transportation Plans
- Area/Regional Transportation Plans
- Statewide Transportation Improvement Program
- Airport Improvement Program

Outline

- Introduction
- What work was included in Phase 1?
- Where are we now?
- What else will happen in Phase 2?
- What is the relationship between this and other long range transportation plans and spending plans?
- **Schedule**

Schedule

• Safety and Aleutians Emergency Response Capabilities	Summer 2014
• Public Meetings	Fall/Winter 2014
• Aviation Analysis	Winter 2014
• Land Transportation Analysis	Winter 2014
• Ferry Service Analysis	TBD
• Draft Report	Spring 2015
• Final Report	Spring 2015

Comments Welcome

Sara Mason, Transportation Planner
DOWL HKM
4041 B Street
Anchorage, AK 99503
(800) 478-DOWL (3695)

swaktransplan@dowlhkm.com

www.swaktransplan.com

Lupine on Dumpling Mountain above Naknek Lake and Brooks River in Katmai National Park. Patrick Cotter, Alaska DOT&PF

Southwest Alaska Transportation Plan Update

Comment Form

What is the Southwest Transportation Plan?

The Southwest Areas Transportation Plan (SWATP) is a 20-year regional transportation plan that guides future public investments in transportation infrastructure in Southwest Alaska. The study area consists of the Lake and Peninsula Borough, Kodiak Island Borough, Aleutians East Borough, (AEB), and some areas outside organized boroughs (Dillingham Census Area, Aleutians West Census Area). As a regional area plan, the focus of the SWATP will be on regional transportation needs, such as movements between communities and in and out of the region.

We need your feedback!

Please review the attached land and surface identified needs list and respond to the following questions

1. Do the projects currently identified for inclusion in the plan represent the regional transportation needs in the Southwest area?

   NO. Alot of runways are too short.

2. Are there projects that should be added or removed from the list due to changes in project development or funding circumstances, such as a permit obtained or funding secured?

   Add Runway extension for Pilot Point, AS we will need a longer runway to transport Product from the future Fish Processing plant.

3. The planning team is beginning to analyze the barge fuel and freight delivery system in the Southwest area. Please provide input on barge landing improvement issues and needs that you are aware of.

To receive project information, please provide your name and an e-mail or postal address:

Name: Victor A. Seybert, President Pilot Point tribal Council

To submit comments, or for additional information contact: Adison Smith, Transportation Planner
DOWL • 4041 B Street • Anchorage, Alaska 99503

Southwest Alaska Transportation Plan Update

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2. Are there projects that should be added or removed from the list due to changes in project development or funding circumstances, such as a permit obtained or funding secured?

yes our runway during breakup or very wet days gets so soft the the Airport is closed to any aircraft

3. The planning team is beginning to analyze the barge fuel and freight delivery system in the Southwest area. Please provide input on barge landing improvement issues and needs that you are aware of.

To receive project information, please provide your name and an e-mail or postal address:

Name: Elijah Eknaty (Kokhanok Village Council)

To submit comments, or for additional information contact: Adison Smith, Transportation Planner
DOWL • 4041 B Street • Anchorage, Alaska 99503

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To receive project information, please provide your name and an e-mail or postal address:

Name: Judy Jo Matson

To submit comments, or for additional information contact: Adison Smith, Transportation Planner
DOWL • 4041 B Street • Anchorage, Alaska 99503

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We need your feedback!

Please review the attached land and surface identified needs list and respond to the following questions

1. Do the projects currently identified for inclusion in the plan represent the regional transportation needs in the Southwest area? No Barge access in Port Heiden is exceedingly difficult the Bay is becoming more shallow, we need to open another DOT gravel pit; we experience erosion to our Meshik village & existing roads, our airfield needs safer access for freight and passengers, we do not have a harbor or port but we maintain a barge landing area, safe roads for all types of ground transportation walk run, All terrain & motor vehicles or all
2. Are there projects that should be added or removed from the list due to changes in project development or funding circumstances, such as a permit obtained or funding secured? PCB removal of airfield/pave Terminal operated by PTH for safety of passengers and freight to keep off apron & active runway; we wish to also contact AIR CARGO export in the future for our business ventures; we would like to expand erosion prevention efforts; create a dock or
3. The planning team is beginning to analyze the barge fuel and freight delivery system in the Southwest area. Please provide input on barge landing improvement issues and needs that you are aware of. Bulk fuel is delivered by barge but we are receiving a new tank farm Air freighted fuel is our last resort unless its cheaper for our local companies; Please contact James Christensen 837 2226 or John Christensen 4445976 also

To receive project information, please provide your name and an e-mail or postal address:

Name: Jaclyn Christensen The Native Village of Port Heiden

From: Gallion, Mary
To: "Darik Larionoff"
Subject: RE: SWATP and Old Harbor CORRECTION
Date: Friday, April 04, 2014 9:04:00 AM

Mr. Larionoff,

I beg your pardon—I gave you the wrong e-mail to send the LRTP. Please send it to adsmith@dowlhkm.com.

Have a good day,

M. Gallion

From: Gallion, Mary
Sent: Friday, April 04, 2014 9:02 AM
To: 'Darik Larionoff'
Subject: RE: SWATP and Old Harbor

Dear Mr. Larionoff,
Thank you for your valuable feedback. Your comments have been forwarded to the project team and added to the project file.
And yes, we would like to see the LRTP. I will be out of the office from April 5th through April 13th. Please send it to Adison Smith, asmith@dowlhkm.com.
We also urge you and the people in your network to take our survey at https://www.surveymonkey.com/s/QYXPV96. This will help us identify community needs for the transportation plan. As you know, this is a large project area with many communities, so feedback such as yours is very important to us.
You can also find us on Facebook, and find project information on our website at www.swaktransplan.com.
Thank you,
Mary Gallion

From: Darik Larionoff [mailto:darik.larionoff@ohtcmail.org]
Sent: Thursday, April 03, 2014 2:52 PM
To: ENT-SWAKTransPlan
Subject: SWATP and Old Harbor

Good Afternoon,
I have just finished reviewing the SWATP, and was rather concerned with the lack of mention for the community of Old Harbor. In the last 8 years the amount of State, Federal, and local dollars that were/are being invested into the community is rather substantial. With the finishing of our new marina and larger docking facility our economic recovery plan is well underway. Step 2 of this project is also well underway with the airstrip expansion project being continued for another year. Also moving along in the permitting process is a new hydro-electric plant that is set to be built in collaboration with the Alaska Village Electric Cooperate. Once all of these factors were taken into consideration 2 separate cannery operators have shown an expressed interest in developing a frozen fish processing plant in

our community. So as you can see in a time where most rural communities are trending towards economic hardships Old Harbor is striving to be one of the few that will survive and prosper. I have just recently submitted our local Long Range Transportation Planning Document to the Bureau of Indian Affairs, and would be delighted if you would review our LRTP in your considerations of the Regional Transportation Planning. If you interested please contact me at the provided info.

Sincerely,

Darik Larionoff
Tribal Transportation Project Manager
Alutiiq Tribe of Old Harbor
PO Box 62 Old Harbor, AK 99643
Phone (907)286-2215
Fax (907)286-2277
Darik.larionoff@ohtcmail.org

8/29/2014

Melvin Andrew
City of Manokotak
PO Box 170
Manokotak, AK 99628

State of Alaska
Department of Transportation & Public Facilities, Melanie Nichols, Southwest Regional Planner
PO Box 112500
3132 Channel Drive
Juneau, Alaska 99811-2500
Phone: 907-465-3900 || 907-586-8365 (FAX)

Dear Ms. Nichols,

During their regular meeting on 8/21/14, Manokotak City Council sought to seek airport improvements at Manokotak Airport.

Currently, we understand DOT/PF is holding Southwest Alaska Transportation Plan Update, Phase II. We also understand that Manokotak Airport was relocated in 2008 and currently using the 3,300 ft. x 75 ft. gravel airstrip.

We are requesting to add at least 1,000 feet to the current airstrip and widening by 25 feet. This will make the current airstrip 4,300 feet by 100 feet. This will accommodate large cargo planes that we need in the very near future. This will also ensure that larger passenger planes will be able to utilize the airstrip.

Thank you and thanks for your support.

Sincerely,

Melvin Andrew
Mayor
City of Manokotak

9/19/2014

Melvin Andrew
City of Manokotak
PO Box 170
Manokotak, AK 99628

State of Alaska
Department of Transportation & Public Facilities, Melanie Nichols, Southwest Regional Planner
PO Box 112500
3132 Channel Drive
Juneau, Alaska 99811-2500
Phone: 907-465-3900 || 907-586-8365 (FAX)

Dear Ms. Nichols,

Thank you for a quick response on our request for extending our airport and placing it in your plans. We will place this In our Community Comprehensive Plan that we will begin this winter.

Currently, we understand DOT/PF is holding Southwest Alaska Transportation Plan Update, Phase II. We also understand that Manokotak Airport was relocated in 2008 and currently using the 3,300 ft. x 75 ft. gravel airstrip. The new airport is less than 2 miles away from the mouth of Snake River. We currently have road access to Weary River with a ramp. Weary River is a tributary of Snake River and is connected by 1.5 miles of gravel road. This ramp is damaged already by current and ice. It was damaged by barges landing on it to unload/load. This ramp was not created for a barge landing.

We requested extending the new Airport to accommodate larger airplanes. This accommodation only creates a possibility to utilize a future dock. We have placed in our plans to create an access road to the mouth of Snake River for a future dock and other essential services for Bristol Bay fisheries and other developments.

On that note, may we again request that you place an access road and dock in your transportation plan along with the extension of the airport?

Thank you and thanks for your support.

Sincerely,

Melvin Andrew
Mayor
City of Manokotak

Southwest Alaska Transportation Plan Update

September 2015

SWATP Planning Team

Joselyn Biloon, Project Manager, DOT&PF – Joselyn.biloon@alaska.gov, 269-0508

James Boyle, Planning Manager, DOT&PF – James.boyle@alaska.gov, 269-0519

Sara Mason, Chief of Statewide Surface Transportation Programs, DOT&PF - sara.mason@alaska.gov,

465-2065

Tom Middendorf, Project Manager, DOWL –Tmiddendorf@dowl.com, 562-2000

Adison Smith, Assistant Project Manager, DOWL – adsmith@dowl.com, 562-2000

DOT&PF Statewide/LRTP Update

- Long Range Transportation Plan (LRTP)
  - Draft status
  - Additional public involvement
- Federal legislation
  - MAP-21 extension
  - DRIVE ACT development
- State budgets
  - Capital budget
  - Operating budget

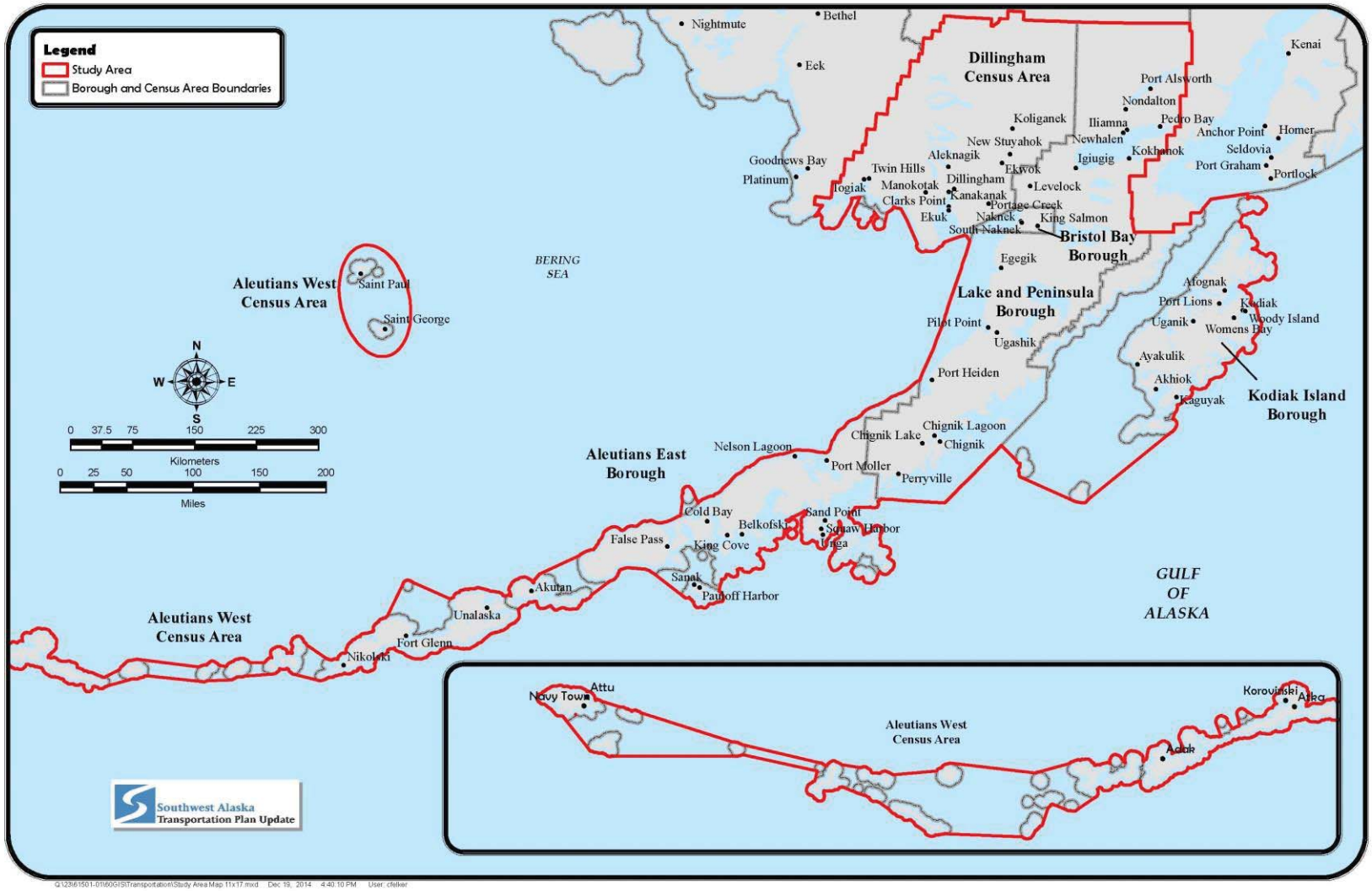
The SWATP is…..

- *One of six area transportation plans adopted as components of the LRTP.*
- *A regional planning document.*
- *A planning document for various modes of transportation and stakeholders.*
- *Guidance for responsible investment in the SW area.*

The SWATP is not…..

- *A programming document.*
- *A document only for DOT&PF.*

Study Area


Legend
Study Area
Borough and Census Area Boundaries
Nightmute
Bethel
Eek
Goodnews Bay
Platinum
Togiak
Twin Hills
Manokotak
Clarks Point
Ekuk
Aleknagik
Dillingham
Kanakanak
Portage Creek
Naknek
South Naknek
Koliganek
New Stuyahok
Ekwok
Levelock
King Salmon
Dillingham Census Area
Kenai
Port Alsworth
Nondalton
Iliamna
Newhalen
Pedro Bay
Anchor Point
Homer
Seldovia
Port Graham
Portlock
Igiugig
Kokhanok
Bristol Bay Borough
Egegik
Pilot Point
Ugashik
Lake and Peninsula Borough
Alognak
Port Lions
Kodiak
Woody Island
Uganik
Womens Bay
Ayakulik
Akhiok
Kaguyak
Kodiak Island Borough
Port Heiden
Chignik Lagoon
Chignik Lake
Chignik
Nelson Lagoon
Port Moller
Perryville
Aleutians East Borough
Cold Bay
Belkofski
Sand Point
Squaw Harbor
Inga
False Pass
King Cove
Sanak
Pauloff Harbor
Akutan
Unalaska
Fort Glenn
Nikolski
Aleutians West Census Area
Saint Paul
Saint George
BERING SEA
GULF OF ALASKA
Attu
Navy Town
Aleutians West Census Area
Korovinski
Atka
Adak
N
W
E
S
0 37.5 75 150 225 300
Kilometers
0 25 50 100 150 200
Miles
Southwest Alaska Transportation Plan Update

Status of 2004 SWATP Recommendations

Runway Extension Recommendations

- Akhiok
- Karluk
- Larsen Bay
- Old Harbor
- Atka
- Ouzinkie
- Port Lions
- False Pass
- Akutan

Status of 2004 SWATP Recommendations

Alaska Marine Highway System

- Increase service to Southwest Alaska
- Relocate Municipal Dock in Kodiak
- Construct Municipal Dock in Chignik

Status of 2004 SWATP Recommendations

Port and Harbor Improvements

- Williamsport Navigation Improvements/Dock
- Unalaska Dock Improvements
- Chignik Public Dock/Fuel Tank Farm
- Pile Bay Dock/Fuel Tank Farm
- Kodiak Dock Improvements

Status of 2004 SWATP Recommendations

Land Transportation Recommendations

- Williamsport to Pile Bay Road
- Kodiak Road to Launch Complex
- Chignik Intervillage Road
- King Cove-Cold Bay Connection
- Alaska Peninsula Bridges
- Iliamna Nondalton Road
- Dillingham-Aleknagik Road/Wood River Bridge

Status of 2004 SWATP Recommendations

Intermodal Development

- Williamsport - Pile Bay
  - Williamsport Navigation Improvements/Transfer Facility
  - Williamsport-Pile Bay Road Improvements
  - Pile Bay Public Dock/Transfer Facility
- Chignik
  - Chignik Dock/Fuel Tank Farm
  - Chignik Intervillage Road
  - Chignik Airport Master Plan

Transportation Funding

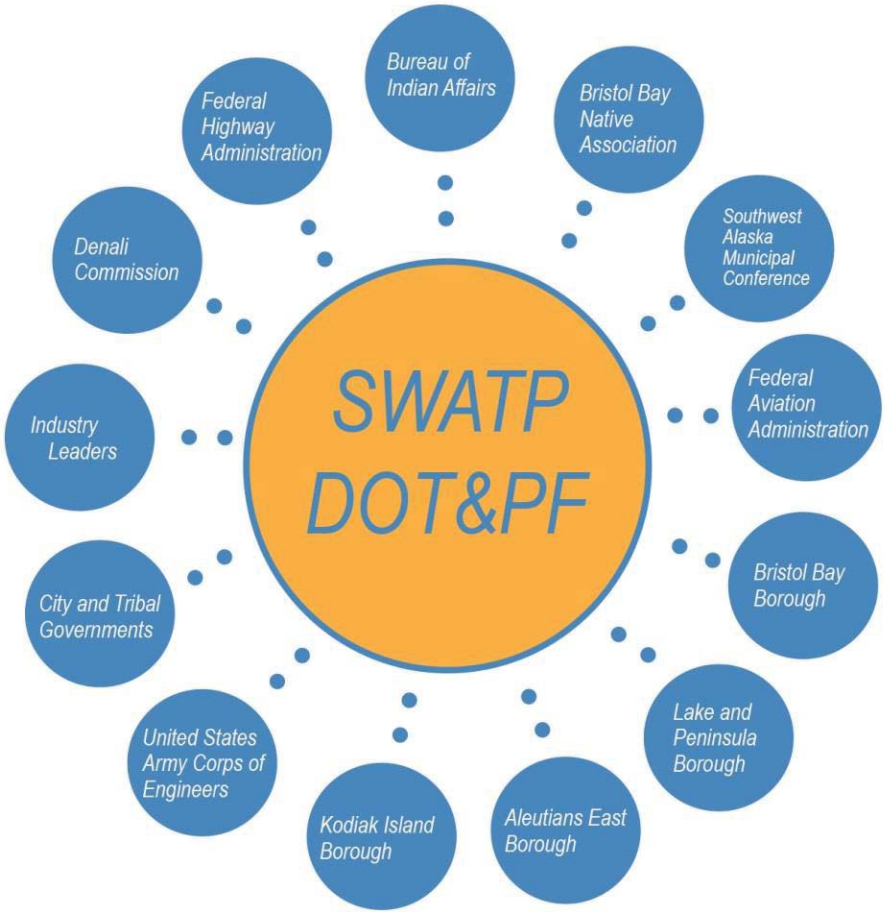
Funding Sources

- FAA
- FHWA
- State
- BIA

Funding Challenges

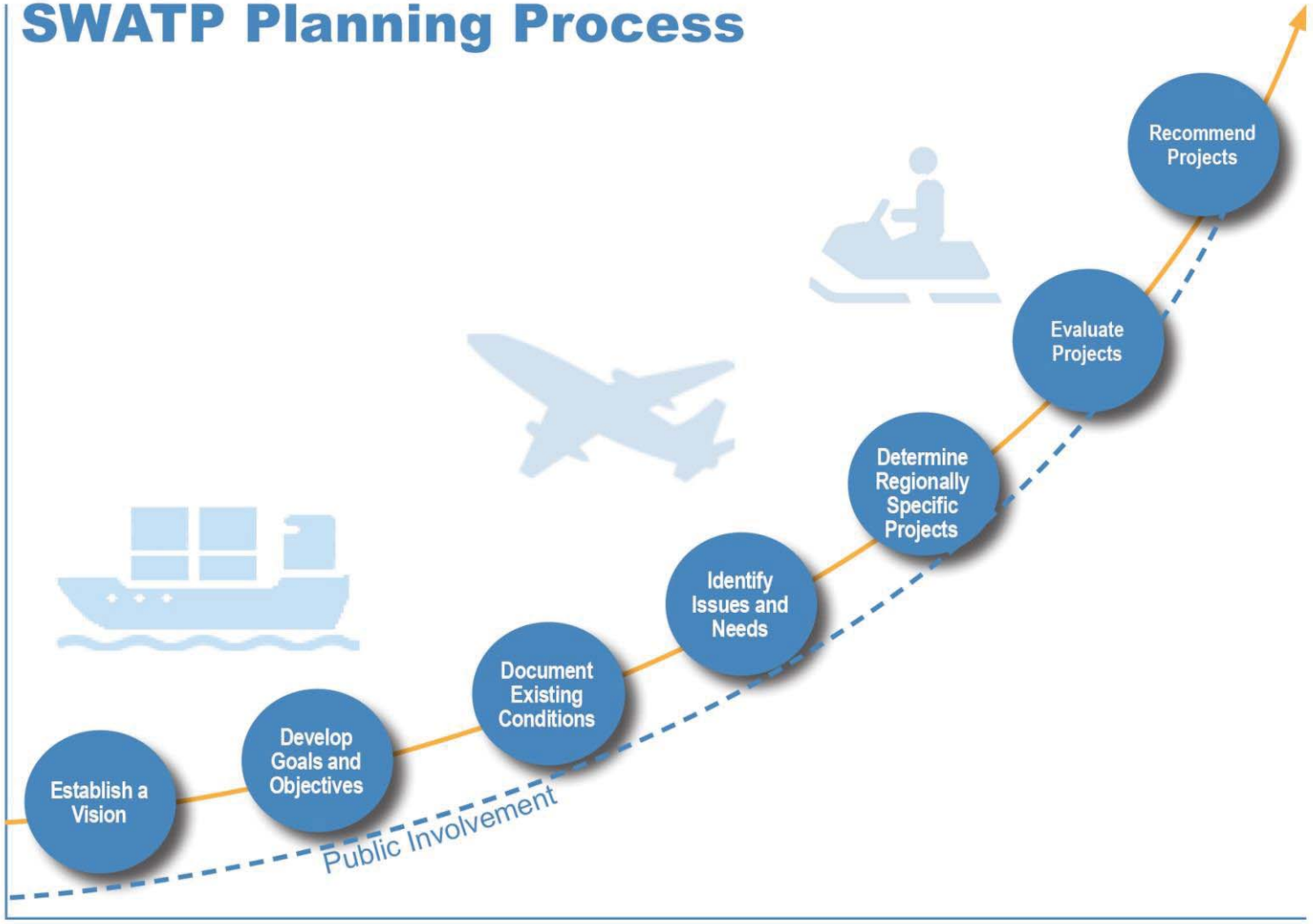
- FAA national priorities
- FHWA national priorities
- Decline in oil revenue

The SWATP is for……



SWATP Stakeholders

SWATP Planning Process



www.swaktransplan.com

Public Involvement

Public Engagement
Methods & Milestones

January 2011

Project Start

Documentation of Existing Conditions

October 2011 – November 2014

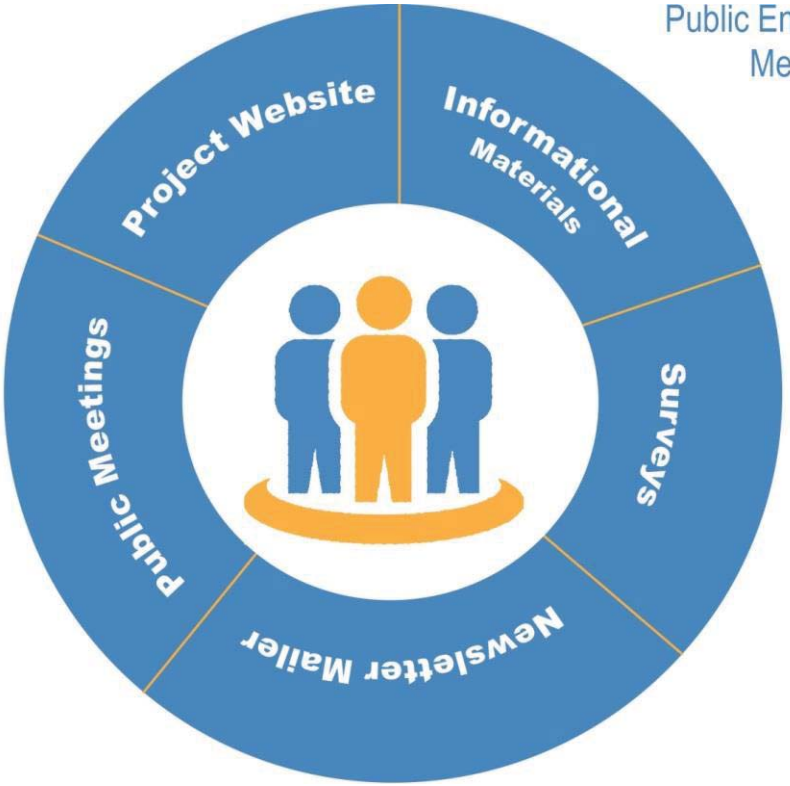
Public Outreach Conducted
Issues and Needs Identified

SWAMC and Kodiak Archipelago Rural Regional Leadership Forum

Stakeholder Interviews

Surveys Collected

Public Meetings
Naknek| Unalaska | Kodiak



August – September 2015

Begin Fuel and Freight Delivery Inventory and Analysis

September 2015

Public Meetings in Kodiak, Dutch Harbor, Dillingham, and King Salmon

September – November 2015

Draft Report Complete

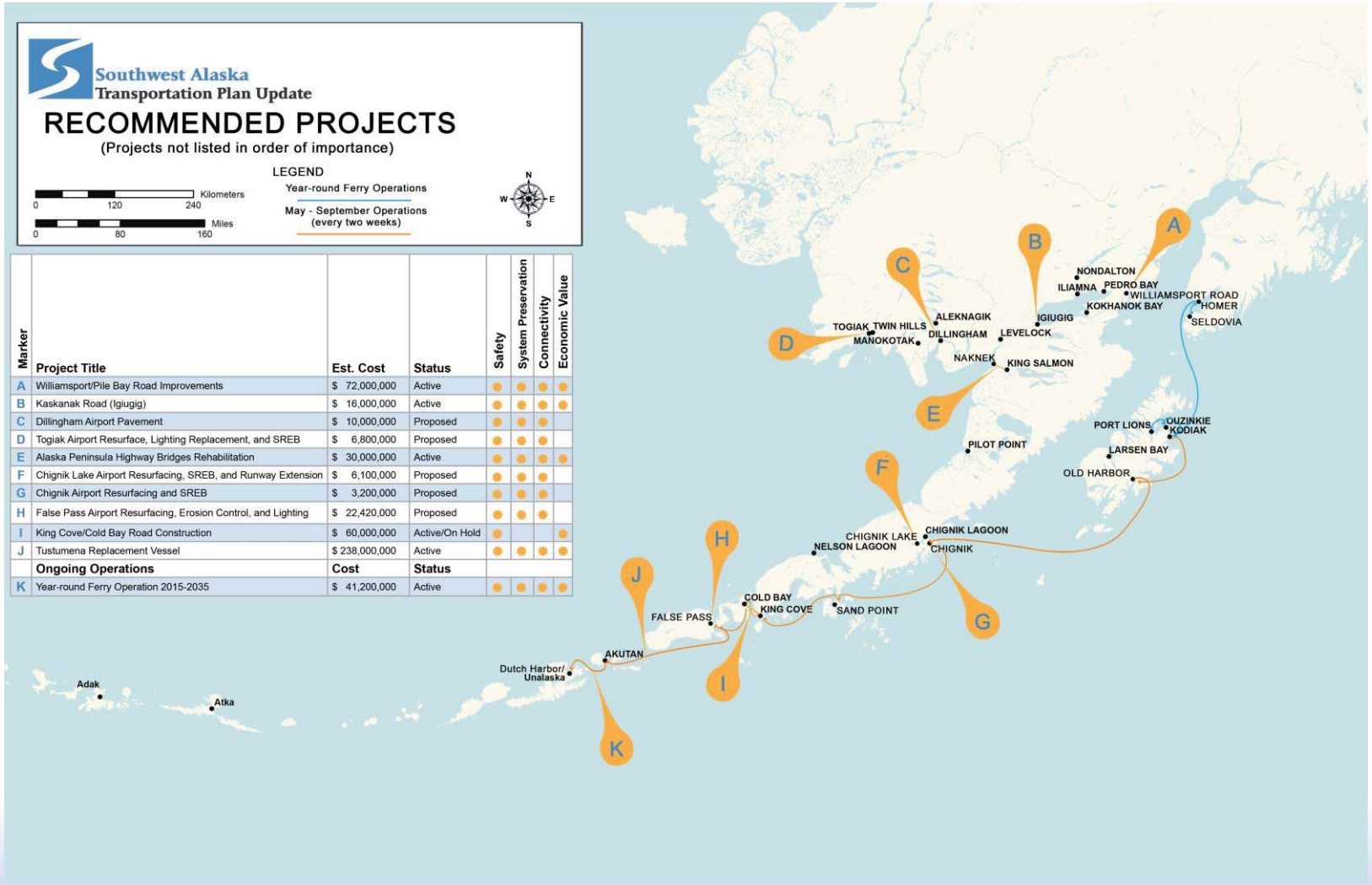
November 2015

Final Draft Complete

January 2016

45 Day Public Review of Final Draft

2015 SWATP Update
Recommended Projects



Marker	Project Title	Est. Cost	Status	Safety	System Preservation	Connectivity	Economic Value
A	Williamsport/Pile Bay Road Improvements	$ 72,000,000	Active	●	●	●	●
B	Kaskanak Road (Igiugig)	$ 16,000,000	Active	●	●	●	●
C	Dillingham Airport Pavement	$ 10,000,000	Proposed	●	●	●	
D	Togiak Airport Resurface, Lighting Replacement, and SREB	$ 6,800,000	Proposed	●	●	●	
E	Alaska Peninsula Highway Bridges Rehabilitation	$ 30,000,000	Active	●	●	●	●
F	Chignik Lake Airport Resurfacing, SREB, and Runway Extension	$ 6,100,000	Proposed	●	●	●	
G	Chignik Airport Resurfacing and SREB	$ 3,200,000	Proposed	●	●	●	
H	False Pass Airport Resurfacing, Erosion Control, and Lighting	$ 22,420,000	Proposed	●	●	●	
I	King Cove/Cold Bay Road Construction	$ 60,000,000	Active/On Hold	●			●
J	Tustumena Replacement Vessel	$ 238,000,000	Active	●	●	●	●
	Ongoing Operations	**Cost**	**Status**				
K	Year-round Ferry Operation 2015-2035	$ 41,200,000	Active	●	●	●	●

Next Steps:

- Complete barge landing analysis
  - Inventory of existing conditions
  - Barge operator interviews
  - Coordination with USACE and Denali Commission's work
  - Prioritize and recommend projects

Next Steps:

- Prepare draft plan
- Solicit public comment (January 2016)
  - There will be a 45 day period open for public comment once the draft is complete. DOT&PF will host an open house via website.
- Document and analyze comments
- Finalize plan (Spring 2016)

Questions?

Visit our website: www.swaktransplan.com

Email us: swaktransplan@dowl.com

Southwest Alaska
Transportation Plan Update

AKSAS 80409, FHWA ACSPR-2000(38), FAA 3-02-000-014-2010, DOWL 60628

Bristol Bay Borough Native Association (BBNA) Board Meeting

Post Meeting Notes: September 22, 2015 1 P.M. – 3 P.M., Dillingham Alaska.

The purpose of this meeting was to brief the Bristol Bay Native Association on Southwest Alaska Transportation Plan (SWATP) progress, and to vet the initial project recommendations.

A presentation was given by Adison Smith, Sara Mason, Don Fancher, and James Boyle with DOT&PF. Comments received from the public are grouped by topic.

Issue/Concern	Discussion	DOWL Response Recommendations
Resource Development	▪ Port Heiden - Needs to open up a DOT&PF gravel pit.	▪ Document the idea.
Barge Access	▪ Port Heiden - Barge access is extremely difficult. Sometimes fuel has to be flown in.	▪ Document the issue.
Transit	▪ Communities in the region would like more transit projects, especially transit between Alegnaigk and Dillingham with the opening of the new bridge.	▪ Document the interest and correlate it with existing transit funding opportunities. ▪ Conduct a study on transit needs and opportunities in the region.
Aviation	▪ BBNA members suggested that it would help if air carriers could make their airplanes ADA compliant so that people in need of emergency services or disabled/elderly can fly.	▪ Document the need. ▪ Add Kokhanok, and Pilot Point Projects to the project list. ▪ Conduct a study that focuses on direct

	▪ 3200 feet is not long enough for our runways. Accidents are happening all the time and this runway length is preventing competition in our communities to help bring down the cost of travel. ▪ Twin Hills – Needs help with brush cutting. ▪ Kokhanok – Runway has to close during breakup or when it is very wet because it gets too soft for an airplane to land. Are there any improvements that would help prevent airport closures? ▪ Pilot Point – Runway extension. They need a longer runway to haul fish from their future fish processing plan (not sure what the status of the future fish processing plant is).	benefits/impacts of improvements to transportation infrastructure for fish delivery.
Bypass Mail Program	▪ In some of the Bristol Bay communities, it takes more than a month to received mail. Why is this? What is going on?	▪ Document the issue. Include a bypass mail section in the draft report. Bypass mail was not included in the original scope of work.
Barge Access	▪ Need to mark hazard areas along the rivers so that barge operators and other maritime users don't run into these hazards and cause spills that can damage the environment, especially subsistence, our way of life.	▪ Document this issue and work with BBNA to identify the hazard areas that need to be mapped out. ▪ Conduct a separate study that identifies hazards along the rivers in the southwest area.
Marine	▪ Dillingham is experiencing severe erosion at the harbor due to wind and climate change. The City is working on developing a levy and dredging the channel (project cost is $2.5 million).	▪ Dillingham Waterfront Project is on the list.

AKSAS 80409, FHWA ACSPR-2000(38), FAA 3-02-000-014-2010, DOWL 60628

Action Items/Follow Up: Julie Baltar (BBNA) and Rose Loera (City Manager) are going to provide DOT&PF with written comments by November 10th.

AKSAS 80409, FHWA ACSPR-2000(38), FAA 3-02-000-014-2010, DOWL 60628

Lake and Peninsula Borough Planning Commission Meeting

Post Meeting Notes: September 21, 2015 12 P.M. – 1:30 P.M., King Salmon Alaska. No public was present, just the Planning Commission

The purpose of this meeting was to brief the Lake and Peninsula Borough Planning Commission on progress with the Southwest Alaska Transportation Plan (SWAKTP), and to gather feedback on proposed projects and actions.

A presentation was given by Tom Middendorf, DOWL, and Dave Post, with DOT&PF. Comments received from the public are grouped by topic.

Issue/Concern	Discussion	DOWL Recommendation
Project Completion	▪ Concerns about the amount of time it takes to get through the funding, environmental and design process for projects. When a project gets stalled, it seems like developers have to start over from the beginning again. In particular the environmental permitting process seems to take too long and the same issues, such as Stellar Eider, keep getting studied repeatedly over a long time and at great expense. By the time a project gets built, project costs have escalated considerably.	▪ Document the issue.
Ferry Service	▪ Ferry dock construction delays at Chignik were	▪ Document the success in Chignik.

	were a concern. Nnote that the Chignik dock project is expected to be constructed in 2016. ▪ The study should also look at ferry dock needs. We will discuss this with the Alaska Marine Highway staff. ▪ How much money does the ferry lose per year? We do not have that information with us.	▪ Document ferry dock needs and the annual ferry budget/deficit in the update. ▪ Include this in the plan (pulled from AMHS report) $92M or 62% in FY16 was covered by GF.
Fuel Costs	▪ If the Nondalton Bridge project was restarted, would it have to start over from the beginning? This is a regionally significant project, as other Iliamna Lake communities like Port Alsworth would also benefit. Fuel costs by air are very expensive. This would make fuel delivery to communities like Nondalton available from barge/truck deliveries. Kokhanok also has high fuel delivery costs. If the Nondalton Bridge project were restarted, some of the engineering and environmental work could be reused, but some would likely have to be updated.	▪ The SW Plan has noted the need to extend the Nondalton runway to improve fuel delivery by air, but there is a stream at the end of the runway that would be affected. ▪ Nondalton Bridge was cancelled due to lack of funding. The Chignik public dock was funded in place of the Nondalton Bridge.

	▪ Has a fuel pipeline been considered as a lower cost and safer option to deliver fuel along the Williamsport Pile Bay Road? We do not know, but it's an interesting idea that might be worth considering.	▪ Document the idea.
Goals	▪ How is the Economic Value goal considered for most of these projects? Many of the projects are more about basic transportation access and maintaining community viability than for economic development. However some projects do have clear economic benefits by supporting fishing, tourism, and resource development. Others indirectly facilitate regional economics by serving hubs.	▪ Conduct a study that focuses on direct benefits/impacts of improvements to transportation infrastructure for fish delivery.

Action Items/Follow Up: Tom call Addrienne Christiansen – she and another council member thought the Dillingham runway had recently been paved, so why pave it again. I will check date of last paving. They may have been confusing it with the apron paving 4 years ago. They feel that Port Heiden runway could be extended and serve as a subregional hub.

AKSAS 80409, FHWA ACSPR-2000(38), FAA 3-02-000-014-2010, DOWL 60628

Kodiak Public Meeting: October 27, 2015 5:30 P.M. – 7:00 P.M., Kodiak Borough Assembly Chambers

The purpose of this meeting was to inform the public of progress made on the Southwest Alaska Transportation Plan (SWATP) and to collect feedback on proposed projects and methodologies.

A presentation was given by Adison Smith, DOWL, and Sara Mason, DOT&PF. Comments received from the public are grouped by topic.

Issues/Concerns	Discussion	DOWL Recommendations
Kodiak Barge System and AMHS	▪ Ferry service carrying freight – AMHS competes with local barge system and charges way below the market rate. ▪ Barge system around the island is lacking. – Western Pioneer quit barge service straight to the villages which caused store closings in 3 communities. There has been no replacement for this service. – A landing craft around the island would help create economic development, cost of living, etc. There is concern about putting some local owners of land crafts out of business.	– Document the issue. Include this in the freight and ferry analysis. Provide concerns to Southcoast and AMHS (if not documented already).
Outdated Plan/Public Comment Period	▪ Plan is outdated and needs to be rewritten. Kodiak just got involved and now we are expected to provide DOT&PF with our priorities by November 1st? All attendees voiced concern about the public comment period. They felt that they just got involved and haven't	▪ Extend the deadline for public comment for Kodiak, Dillingham and, Unalaska to November 10th so we can reflect the changes in the update. The Borough and the City

	been consulted with since some of the changes with funding have taken place in Alaska.	are both working to complete their CIP lists. They are interested in providing 2-3 top priority projects for Kodiak Island.
Land Transportation Projects with a Regional Benefit	▪ Mill Bay Road Intersection Improvements. This intersection is very dangerous for vehicles, bicyclist, and pedestrians. The road is owned by the city, but is a regional project and should be considered a priority. ▪ Rezenof Drive Lighting and Striping Improvements – Need lighting and striping. The road is very dark and hard to see during the winter months due to darkens and extreme weather conditions. ▪ Anton Larson Bay Road Extension – All attendees agreed that this is a priority for the Island and suggested that this be reconsidered for recommendation.	▪ Add Mill Bay Road and Rezenof Drive Lighting and Striping Improvements to the project list. ▪ Re-evaluate projects and see if the Anton Larson Bay Road Extension project scores high enough to be recommended.
Tourism/Cruise Ships/Dock Availability	▪ Kodiak facilities are in need of improvement. – Considering that Shelikof Street is a processing road and so much of the economy and the region's economy are based on fisheries, the improvements would be an investment that makes sense for the entire region. The City, Borough and the Tribe were in support of this project. ▪ The Breakwater Project is an important need to keep in mind as it will reduce the swells into Kodiak which will aid in protecting the container dock. The Kodiak container dock is the most exposed in the world.	▪ Consider the Shelikof Street Improvements as a priority project.

BARRIERS

Funding/Coordination

- All attendees realize that they need to focus on the top two-three priorities for this plan. They understood what the purpose of this document is and the value of them coordinated on one formal comment. As stated below they do not feel that they were provided enough time to prepare comments that will be valuable for the plan so they can use it to secure future funding as a group. They request to submit formal comment by November 15th.

OPPORTUNITIES

Coordination

- Possibly create a joint city/borough workgroup where CIP's can be aligned. In the past they had a workgroup called Kodiak Area Transportation System. The group discussed potentially sharing only transportation priorities so they can start coordinating these types of projects and then look at other infrastructure in the near future.

AKSAS 80409, FHWA ACSPR-2000(38), FAA 3-02-000-014-2010, DOWL 60628

Unalaska Public Meeting: October 21, 2015 5:30 P.M. – 7:00 P.M., Burma Road Chapel

The purpose of this meeting was to update the public on the Southwest Alaska Transportation Plan (SWAKTP) and get feedback on projects and proposals in the plan.

A presentation was given by Adison Smith, DOWL and Joselyn Biloon, DOT&PF. Comments received from the public are grouped by topic.

Issues/Concerns	Discussion	DOWL Recommendations
Limited Flight Availability	▪ Due to high volumes of cannery employees and fishermen, there is little availability for local residents to book travel in/out of Unalaska. – Commercial transportation needs take priority within the community. – Locals are low on the priority list. – Flights are sometime scheduled without a revenue load for both incoming/outgoing directions. – Locals are placed on an excessive waitlist for flights in/out of Unalaska (>100 ppl). – Unalaska doesn't quality for Essential Air Service.	▪ Document issues.
Access to Health Care	▪ Local residents are forced to arrange more-costly charter flights to meet transportation needs.	▪ Document issues. ▪ Develop recommendation such as

	– Local residents with medical issues travel to Anchorage approximately every 6-8 weeks. Limited flight availability (flights offered and available seats) greatly restricts local residents from arranging and keeping medical appointments. – Unalaska residents with medical issues have no flight priority at the height of the busy fishing season. – Many residents with medical issues use Medicaid. As such, travel in/out to hospitals requires Medicaid approval. The approval process requires resident's book travel in advance which is not conducive with limited and costly flight availability. – Local residents frequently get "bumped" from their flights and are left stranded in the Anchorage airport during peak fishery seasons.	looking at existing health care facilities. Can the community expand its services based on these issues? ▪ Recommend a coordinated study between the Indian Health Service, Bureau of Indian Affairs, Medicaid, and Alaska Airlines to develop solutions for providing better access to health care for the residents of Unalaska.
Costly Flights	▪ Due to runway size restrictions Alaska Airlines (operated by Pen Air) are the sole aviation outfit. – Local residents are forced to pay uncompetitive prices for roundtrip tickets. – Local use limited Alaska Marine Highway System to meet transportation needs.	▪ Document issue.
Alaska Marine Highway System	▪ Ferry service is limited – Ferry costs are cheaper than airfare, but	▪ Document issue. ▪ Share concerns with Southcoast and

(Ferry)	schedules are still limited and not always practical. – Recent budget cuts will further restrict ferry availability. – Ferry service is used not only by Unalaskans, but also from other southwest communities such as Akutan. ▪ Ferry service is critical form of transportation. – Hauls freight and passengers.	AMHS. ▪ Conduct outreach to the southwest area communities to inform them about fiscal and operation constraints of ferry.
Tourism/Cruise Ships/Dock Availability	▪ Unalaska dock facilities can't keep up with growing tourism demand. – One cruise ships adds approximately 2,500 passengers and 1,000 crew members. – Dock facilities are at limited capacity to handle increased tourism population. – Additional cruise ships are confirmed for 2016-2017. – Unalaska is not set up to receive double its current population ▪ Dock Space is limited. – Barges hauling seafood takes priority. ▪ Construction of new dock facilities are progressing slowly and may limit additional cruise ships in 2016-2017. – Current dock allows for only one cruise ship to port at any given time.	▪ Document the issue. ▪ Add dock projects to list. ▪ Re-evaluate project list to determine if any of the dock projects should be considered a priority.

	– It's hard for the City to prioritize dock space for barges carrying groceries with those outgoing carrying seafood. ▪ In 2017, Unalaska has been advertised as a stopping point for approximately 40 sailboats. Unalaska was not involved in the planning or advertising of these services and may not have capacity to dock 40 sailboats.	
Captains Bay Road and Pedestrian/Bike Facilities	▪ Captain Bays Road is a new project that is a priority for Unalaska and all industry users. The project is the logical location for future commercial and residential expansion for the community. ▪ Current pedestrian/bike facilities are non-existent. – More crosswalks are needed. ▪ Pedestrian/bike facilities are unsafe and/or unreliable. – The "S-Curve" is extremely dangerous for pedestrians and bicyclists. – Heavy commercial traffic, in addition to no sidewalks makes the "S-Curve" unusable by locals. – The "S-Curve" is exceptionally narrow and abuts a steep rock face with numerous and daily rock slides.	▪ Add Captain Bays Road Drainage and Paving and Utilities Expansion to the project list. Re-evaluate the project list to determine if this project should be recommended. ▪ Recommend that Unalaska consider bike and pedestrian facilities into their Captains Bay Road Drainage and Paving Project. ▪ Community members recommended a site-visit to discuss the lack of pedestrian facilities. ▪ Provide the City with a recommendation to partner with industry on any surface or marine project that needs funds and is being heavily used by their vehicle fleet and people.

	– Local feel unsafe traveling on the "S-Curve."	
Public Transit System	▪ Public transit system is needed. – 15 years ago the City talked about it but funding wasn't available. – Senior citizens have a shuttle to/from senior housing to the post office and Safeway. No other public transportation is available. – Transit system is needed especially during winter months. – Roads are congested with busy industrial traffic.	▪ Document the need. ▪ Provide the city with funding opportunity suggestions.
Health Facility Needed	▪ A more-equipped health facility would reduce the need for locals to travel to/from Unalaska for healthcare. – The City is trying to work with the Bureau of Indian Affairs to build new hospital. – The current health clinic is not a hospital and is out exceptionally outdated at 25 years old. – Currently there is not partnership with the Tribe for funding.	▪ Document the need.
Future Growth of Unalaska is limited	▪ If transportation, pedestrian/bicycle facilities, and healthcare amenities are not met, Unalaska can't grow. – Climate change is opening the northwest arctic passage – Unalaska unequipped to handle future growth and development.	▪ Document Issue.

	– More transportation infrastructure is needed to sustain future growth and development.	

BARRIERS

Funding

- Funding is the limiting resource.
- Remoteness
- Lack of transportation options.
- Lack of coordination between industry and local government.

OPPORTUNITIES

Pedestrian/Bike Facilities

- New facilities would add new opportunities for bicycle related tourism activities.
  - Education kiosks and interpretative signage could add revenue on the tourism side.
  - Pedestrian/bicycle master plan could analyze unsafe conditions, and recommend projects to address these issues.

Other

- City/Tribe can work together to get grants for some improvement projects.
- The Mayor of Unalaska is working on a policy for essential air service.
- City is currently addressing port projects.

- Captain's Road is a good example of recent improvements.
- Ballyhoo Road has been identified for improvements.

CITY OF UNALASKA
UNALASKA, ALASKA
RESOLUTION 2015-64

A RESOLUTION IDENTIFYING THE CITY OF UNALASKA'S PRIORITIES FOR THE SOUTHWEST ALASKA TRANSPORTATION PLAN AS THE UNALASKA MARINE CENTER POSITIONS 3 AND 4 DEMOLITION AND RENOVATION, CAPTAINS BAY ROAD IMPROVEMENTS CONTINUED BIMONTHLY FERRY SERVICE AND SUPPORT OF THE ALASKA MARINE HIGHWAY, AND THE TORPEDO BUILDING DEMOLITION.

WHEREAS, the Southwest Alaska Transportation Plan is a 20 year regional transportation plan that guides future public investment in transport infrastructure in Southwest Alaska; and

WHEREAS, as a regional area plan, the focus of the SWATP is on regional transportation needs, such as movement between communities in and out of the region; and

WHEREAS, City of Unalaska is the number one fishing port in the United States and host to national and international shipping vessels, fuel barges, state ferries, cruise ships and more; and

WHEREAS, comments have been solicited from the City Council regarding what the plan's priories should be as they relate to Unalaska; and

WHEREAS, the City Council adopts a Capital Improvement and Major Maintenance Plan (CMMP) annually, identifying key projects anticipated in the coming five years; and

WHEREAS, the Unalaska Marine Center Project constructing a sheet pile dock that follows the alignment of the U.S. Coast Guard dock and intersecting the end of Position 4 would create over 400 feet of useable dock and additional uplands is included on the current CMMP; and

WHEREAS, the Captains Bay Road Improvements Project for roadway improvements and utility extensions has been included in previous CMMP's because Captains Bay Road is heavily used by commercial traffic related to existing shipping, fueling, and processing industries and future growth and business activity related to provide dock expansions is expected to occur along Captains Bay Road requiring water, sewer, and electric utilities; and

WHEREAS, the City Council has adopted a Comprehensive Plan that outlines the community's vision, needs, and related objectives giving guidance to the City Council in their decision making; and

WHEREAS, the Comprehensive Plan stresses the need to provide the highest level of service possible to protect health and wellbeing throughout the community and to ensure that all public improvements are well maintained; and

WHEREAS, the City Council has previously requested that the State of Alaska remove the Torpedo Building, thereby mitigating a public danger and allowing for the adjacent uses related to the Tom Madsen Airport, including the runway itself, to be done so in a safe manor; and

WHEREAS, the Comprehensive Plan stresses the need for the Alaska Marine Highway System (AMHS) ferry to come to Unalaska at least twice a month due to the fact that Unalaska can only be reached by air or water, this service is considered critical to Unalaska's residents, businesses, and visitors;

NOW THEREFORE BE IT RESOLVED that the Unalaska City Council, by this resolution, hereby identifies the following as its top priorities for Southwest Alaska Transportation Plan:

- Unalaska Marine Center Project
- Captains Bay Road Improvements Project
- Continued Ferry Service and Support of the Alaska Marine Highway
- Torpedo Building Demolition

PASSED AND ADOPTED BY A DULY CONSTITUTED QUORUM OF THE UNALASKA CITY COUNCIL THIS _____ day of_____ 2015.

_____
MAYOR

ATTEST:

_____
CITY CLERK

MEMORANDUM

TO: **MAYOR AND CITY COUNCIL MEMBERS**

THRU: **DAVID MARTINSON, CITY MANAGER**

FROM: **ERIN REINDERS, DIRECTOR OF PLANNING**

DATE: **NOVEMBER 10, 2015**

RE: **RESOLUTION 2015-64: SWATP Priorities**

SUMMARY: A resolution outlining Council's transportation project priorities for the Alaska Department of Transportation and Public Facilities (ADOT&PF) Southwest Area Transportation Plan (SWATP). As reviewed at the last council meeting, the projects are:

- Unalaska Marine Center Project
- Captains Bay Road Improvements Project
- Continued Ferry Service and Support of the Alaska Marine Highway
- Torpedo Building Demolition

PREVIOUS COUNCIL ACTION: Earlier in September, the ADOT&PF and their consultants presented to Council on the Southwest Area Transportation Plan (SWATP) requesting comments. Council then requested a public meeting be held by ADOT&PF and their consultants to gather comments from the community.

BACKGROUND: The SWATP is a 20 year regional transportation plan that guides future public investments in transportation infrastructure in Southwest Alaska. The focus of the SWATP is on regional transportation needs, such as movements between communities and in and out of the region. Since presenting to Council, the ADOT&PT and their Consultant team came out and held a public meeting in October to garner input from community members. A summary of the findings from this meeting has been previously provided to Council. Additionally, City staff has reviewed the Capital and Major Maintenance Plan (CMMP), Comprehensive Plan and previous Council actions as they relate to what could be Council's transportation priorities in the SWATP. The anticipated list of priorities was shared with Council at the October 27 Council Meeting and has now been put in the form of a resolution.

DISCUSSION: Based on a review of previous City Council action, the CMMP and the Comprehensive Plan, as well as community feedback at the public meeting in October with ADOT&PF and their consultants, the following is an overview of the suggested priorities for the Southwest Area Transportation Plan:

Unalaska Marine Center (UMC) Expansion and Replacement Project: The Unalaska Marine Center Project constructing a sheet pile dock that follows the alignment of the U.S. Coast Guard dock and intersecting the end of Position 4 would create additional useable dock and additional uplands is included on the current CMMP. UMC has 7 berthing positions with 2,051 linear feet. Positions 3 and 4 are aging and inadequate to meet the service demands of cargo, fueling, and passenger vessels. Position 3 is a deteriorating wood pile-supported dock with no adjacent uplands and Position 4 is a steel pile-supported dock with severe erosion problems in areas that cannot be accessed for repair. The design for the UMC Expansion and Replacement Project removes these two aging positions and constructs a new dock with open cell sheet-pile, creating 940 feet of working dock face with minimum water depth of 45', and 1.8 acres of uplands with load capacity to handle major cargos, fueling and larger vessels. This design includes extension of the crane rails to meet demands of increased cargo activity, additional utility lines for water, sewer and fuel headers, as well as

additional warehousing and loading bays for catcher processor offloads. The expansion and replacement project also includes heavy-duty fenders and bollards, a concrete-face-beam, and bull-rails along the entire face of the expanded dock. High mast lighting, drainage with oil/water separators, and anodes are all in included in the main project. The need for this project was echoed in the ADOT&PF public meeting where participates noted that the current dock facilities were not able to keep up with growing tourism demand.

Captains Bay Road Improvements Project: The Captains Bay Road Improvements Project for roadway improvements and utility extensions has been included in previous CMMP's because Captains Bay Road is heavily used by commercial traffic. Future growth and business activity related to dock expansions is expected to occur along Captains Bay Road requiring water, sewer, and electric utilities. This road serves as a primary transportation route for a great number of commercial enterprises located in Captains Bay. The section of road making up this project is a high traffic area for heavy vehicles that are used by the fishing and transshipment industries, which are vital to the community's economic welfare. During public meetings on the Unalaska Road Plan in 2011, both driver and industry representatives spoke of the hazards of the high road crown that is necessary for adequate drainage. In winter months, this crown creates dangerous driving conditions for the large trucks and school buses traveling the road. The road cannot be paved without first completing drainage improvements. This project includes providing utilities to the end of the road. Currently electric is provided to Westward (of limited capacity) and less than adequate water is provided to the Crowley Dock.

Torpedo Building Demolition: The Comprehensive Plan stresses the need to provide the highest level of service possible to protect health and wellbeing throughout the community and to ensure that all public improvements are well maintained. This is vital for the well-being of all residents of, and visitors to, the community as a whole. The Torpedo Building has degraded beyond repair and has created a threat to public safety. A relatively recent example of the danger this threat poses was on February 7, 2014 when a windstorm threw 16 foot pieces of lumber from the structure, damaging vehicles in the nearby parking lot. This prompted local public outcry and resulted the City Council passing City Council Resolution 2014-26 requesting the that ADOT&PF remove the structure, thereby mitigating a public danger and allowing for the adjacent uses related to the Tom Madsen Airport, including the runway itself, to be done so in a safe manor.

Continued Ferry Service and Support of the Alaska Marine Highway: The Comprehensive Plan highlights the community's desire for the Alaska Marine Highway System (AMHS) ferry to come to Unalaska at least twice a month due to the fact that Unalaska can only be reached by air or water, this service is considered critical to Unalaska's residents, businesses, and visitors. This was echoed in the ADOT&PF public meeting where participants stated the following:

- Ferry costs are cheaper than airfare, but schedules are still limited and not always practical
- Ferry service is used not only by Unalaskans, but also from other southwest communities such as Akutan
- Ferry service is critical form of transportation for both freight and passengers.

ALTERNATIVES: The City Council could revise the list of priorities as they see fit.

FINANCIAL IMPLICATIONS: There are no direct financial implications at this time.

LEGAL: None.

PROPOSED MOTION: I move to approve Resolution 2015-64.

STAFF RECOMMENDATION: Staff recommends maintaining the ruling of the Platting Board.

CITY MANAGER COMMENTS: The City Manager recommends approval of Resolution 2015-64.

Introduced by:	Borough Manager
Requested by:	Borough Assembly
Drafted by:	Special Projects Support
Introduced:	11/05/2015
Amended:	11/05/2015
Adopted:	11/05/2015

KODIAK ISLAND BOROUGH
RESOLUTION NO. FY2016-09

A RESOLUTION OF THE ASSEMBLY OF THE KODIAK ISLAND BOROUGH ADOPTING A STATE LEGISLATIVE CAPITAL IMPROVEMENT PROJECTS PRIORITY LIST FOR THE 2016 LEGISLATIVE SESSION

WHEREAS, the Kodiak Island Borough represents approximately 14,000 residents of the Kodiak Island Archipelago living in six incorporated cities and one community governed by a tribal council government; and

WHEREAS, a Borough–wide capital improvement program has been adopted by the Kodiak Island Borough Planning & Zoning Commission which identifies major needs of the island community for the next five years; and

WHEREAS, the Kodiak Island Borough Assembly has identified major projects to submit to the Alaska Governor and State Legislative Delegation for funding consideration;

NOW, THEREFORE, BE IT RESOLVED BY THE ASSEMBLY OF THE KODIAK ISLAND BOROUGH THAT:

Section 1: The Kodiak Island Borough's State Legislative capital improvement project priorities for the 2016 legislative session are as follows:

1. M/V Tustumena Replacement Vessel Construction

Estimated Project Cost	$238,000,000
State Funding Request	$50,000,000

The Alaska Department of Transportation and Public Facilities is currently in the process of designing the M/V Tustumena replacement vessel. The M/V Tustumena was built in 1964 and serves the communities of South Central, Kodiak Island and Southwest Alaska. It is one of two ocean class vessels in the Alaska Marine Highway System (AMHS) fleet. Because of its size and design, it is the only AMHS vessel that is capable of serving all 13 ports of call between Homer and Unalaska. Retiring and replacing the M/V Tustumena with a vessel that is equally, if not more, versatile and seaworthy will provide reliable marine transportation service well into the future for the communities, residents and businesses in South Central, Kodiak Island and Southwest Alaska (from the Alaska Marine Highway System website).

The M/V Tustumena is an essential service to the communities of Kodiak Island. As such, the Kodiak Island Borough is requesting that the Governor plan to include in the capital budget a $50,000,000 deposit into the Vessel Replacement Fund to provide funding for the construction of the replacement vessel.

2. Anton Larsen Bay Road Extension to Ice Free Water

Estimated Project Cost	$8,450,000
KIB Funding Source: Ouzinkie Native Corp, SIDCO	450,000
State Funding Request	$8,000,000

An extension of the Anton Larsen Bay Road to ice free waters will provide year around access to those communities located in the Kupreanof Strait as well as those who use the island's west side for commercial and recreational purposes. Many times during the year travel by vessel to/from Kodiak is treacherous. Extending the road to ice free waters makes traveling safer, providing access to critical services located in the City of Kodiak including hospitals and businesses. This route was identified in the Kodiak Transportation Plan as an important upland facility.

The Ouzinkie Native Corporation subsidiary, Spruce Island Development Corporation (SIDCO) received a $450,000 legislative grant for planning and design. With that grant funding SIDCO is working with DOT finalizing the route and developing a more formal cost estimate.

Funding is requested from DOT for construction of this road as it is an extension of an existing state roadway. Additionally, the land owner, Ouzinkie Native Corporation, has agreed to donate ownership of the road right-of-way to the State when construction funding is obtained; and another local organization, Sun'aq Tribe of Kodiak, is working to obtain BIA or other road grant funding to support the project.

3. East Elementary Traffic Flow Improvements

Estimated Project Cost	$2,000,000
State Funding Request	$2,000,000

There is a safety issue in the East Elementary School parking lot. The school was constructed in 1966 with a substantial addition in 1988. The facility now totals 39,842 square feet with twenty-five teaching stations. Since the expansion, increased traffic flows due to business development in the area have created dangerous vehicle/student hazards when students are entering and leaving school. Reconfiguration of the parking area will reduce risks by providing for a safer separation of pedestrians, small vehicle traffic and bus loading/unloading. The project will require an increase in the total area of the parking lot to allow adequate parking to support increased building usage and occupant load.

4. Drainage Improvements to the Chiniak Highway at Sargent Creek

Estimated Project Cost	$54,000
State Funding Request	$54,000

Heavy rains along with high tides consistently cause Sargent Creek to flood and diverge from its channel. This causes flooding at the intersection of the Chiniak Highway and Sargent Creek Road. This intersection is the only roadway in and out of Bells Flats subdivision. The flooding occurring here impedes safe travel and often leaves motorists stranded and unable to reach homes or critical services located in town.

This request is to provide the DOT in Kodiak funding to construct spot improvements for bank stabilization, armoring, and rechanneling as needed to keep the Sargent Creek in its channel and stop the flooding of the roadway.

5. Service Area Road Improvements and Paving

Estimated Project Cost	$5,000,000
State Funding Request	$5,000,000

This project addresses the on-going need to improve portions of Borough Service Area roads. There are approximately 26 miles of road among four Road Service Areas that connect residential neighborhoods with the greater Kodiak community. Paving projects will address main thoroughfares or busy neighborhood roads. Improvements to major drainage courses, installation of guard rails, and other identified road improvement needs may also be addressed with this funding. Priorities will be given to collector roadways with relatively higher volume use and further based on recommendations made by the elected service area boards.

6. Fire Protection Area No. 1 Fire Tanker/Tender Vehicle

Estimated Project Cost	$420,000
KIB Funding Sources: Service Area Funds	$320,000
State Funding Request	$100,000

The Bayside Fire Station provides fire protection to the residents and visitors of Fire Protection Area No. 1. Bayside Fire Station's existing fire tanker/tender vehicle that serves the area is 32 years old and in need of replacement. The estimated cost of a new fully equipped 3,000 gallon fire tank/tender vehicle delivered to Kodiak is $420,000. Fire Protection Area No. 1 has $320,000 to fund the purchase of the vehicle. The remaining $100,000 required to complete the purchase is requested.

7. Mill Bay Beach Access Upgrade

Estimated Project Cost	$200,000
State Funding Request	$200,000

Mill Bay Beach is a recreational area heavily used by residents, sport fishermen and community groups who come to access this beach site close to town. Time, tide and use have eroded safe access to the two stretches of beach at this site. The project has been through the design and engineering process. New construction items proposed for this project include new stairs, walkways, and trail enhancements between the two beaches as well as a small raft/kayak launch.

8. Monashka Bay Water and Sewer Project: Feasibility, Planning and Design

Estimated Project Cost	$500,000
State Funding Request	$500,000

There are 256 residential parcels that lie outside the reach of the existing sanitary sewer and public water utilities in the Monashka Bay area. The soil and topography in this area are not ideal for septic systems and many are failing. The construction of a wastewater treatment facility at the Kodiak landfill provides an option for future expansion that could include sanitary sewer treatment for the residents of this area. Water in this neighborhood is provided by wells, cisterns and more frequently by tank from a distant public source. Water quality and quantity are questionable in the Monashka Bay Neighborhood. Extension of water service from the City of Kodiak will be needed. A feasibility study,

planning and design is the first step in providing water and sewer services to the residents of the Monashka Bay area.

Section 2: The Kodiak Island Borough administration is hereby instructed to advise our State of Alaska Governor and Legislative Delegation of the Capital Improvement Projects Priority List adopted by the Kodiak Island Borough Assembly.

ADOPTED BY THE ASSEMBLY OF THE KODIAK ISLAND BOROUGH THIS FIFTH DAY OF NOVEMBER, 2015

KODIAK ISLAND BOROUGH

Jerrol Friend, Borough Mayor

ATTEST:

Nova M. Javier, MMC, Borough Clerk

APPENDIX C

Runway Length and Surface Improvements

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Appendix C

SW AK Runway Length and Surface Improvements

From 1985 to 2014

	Average RW Length		Runway Surface			
Airport Class	1985	2014	1985 Paved	2014 Paved	1985 Gravel Surface	2014 Gravel
Regional	6,944	7,036	4	6	2	0
Community	3,035	3,542	2	6	32	29
Local	2,604	2,552	0	1	5	4
Total	4,194	4,376	6	13	39	33

*Akutan is not included in the 1985 data as it was a not built until after 1985.

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

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APPENDIX D

Community/Local Airports 3,000 Feet or Longer

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Appendix D

SW AK Community/Local Airports 3,000 Feet or Longer

From 1985 to 2014

Airport	3,000' or Longer in 1985?	3,000' or Longer in 2014?
ADAK	YES	YES
AKHIOK		YES
AKUTAN		YES
ATKA	YES	YES
CHIGNIK	YES	
CLARKS POINT		YES
EGEGIK		YES
EKWOK		YES
IGIUGIG		YES
KING COVE	YES	YES
KOKHANOK		YES
KOLIGANEK		YES
LEVELOCK		YES
MANOKOTAK		YES
NELSON LAGOON		YES
NEW STUYAHOK		YES
NIKOLSKI		YES
OUZINKIE		YES
PEDRO BAY		YES
PERRYVILLE		YES
PILOT POINT	YES	YES
PORT HEIDEN	YES	YES
SAND POINT	YES	YES
SOUTH NAKNEK NR 2		YES
ST GEORGE	YES	YES
ST PAUL ISLAND	YES	YES
TOGIAK	YES	YES
TWIN HILLS		YES
UGASHIK/NEW		YES
Total Number of Airports	10	28

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

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APPENDIX E

Runway Length Increases and Decreases

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Appendix E

SW Alaska Airport Runway Length Increases/Decreases

From 1985 – 2014

Airport	Runway Length in 1985	Runway Length in 2014	Runway Length Increase/Decrease
AKHIOK	2170	3120	950
AKUTAN	N/A	4500	4500
ATKA	3300	4500	1200
CHIGNIK	3000	2600	-400
COLD BAY	10,415	10180	-235
EGEGIK	2000	5600	3600
EKWOK	1900	3319	1419
FALSE PASS	2500	2150	-350
KARLUK	2400	2000	-200
KING COVE	4000	3500	-500
KOKHANOK	1900	3300	1400
KOLIGANEK	2000	3000	1000
LEVELOCK	2000	3281	1281
MANOKOTAK	2600	3300	700
NAKNEK	2470	1950	-520
NELSON LAGOON	2200	4003	1803
NEW STUYAHOK	2200	3281	1081
OLD HARBOR	2000	2750	750
OUZINKIE	2500	3300	800
PEDRO BAY	1600	3000	1400
PERRYVILLE	2500	3300	800
PILOT POINT	3590	3280	-310
PORT HEIDEN	6200	5000	-1200
PORT LIONS	2600	2200	-400
SAND POINT	3750	5213	1463
SOUTH NAKNEK NR 2	2600	3314	714
ST GEORGE	4100	4982	882
ST PAUL ISLAND	5175	6500	1325
TOGIAK	5000	4400	-600
TWIN HILLS	2000	3000	1000
UGASHIK/NEW	3500	3100	-400

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

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APPENDIX F

Unalaska Map

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600 300 0 600 1,200
Feet
NATEEKIN BAY
BALLYHOO ROAD
UNALASKA MARINE CENTER (UMC) &
UNITED STATES COAST GAURD (USCG) DOCK
LIGHT CARGO DOCK
SPIT DOCK FACILITY
DUTCH HARBOR
AIRPORT BEACH ROAD
BIORKA DRIVE
MARGARET BAY
SALMON WAY
ROBERT STORRS SMALL BOAT HARBOR
ILIULIUK HARBOR
ILIULIUK BAY
CAPTAIN'S BAY
EAST POINT ROAD
EAST CHANNEL
CARL E. MOSES BOAT HARBOR FACILITY
SOUTH CHANNEL
SUMMER BAY ROAD
5TH STREET
BROADWAY AVENUE
CAPTAINS BAY ROAD
UNALASKA LAKE
Appendix F: Page 1 of 1
Southwest Alaska
Transportation Plan Update
TRANSPORTATION & PUBLIC FACILITIES
STATE OF ALASKA

APPENDIX G

Kodiak Map

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Southwest Alaska Transportation Plan Update

APPENDIX H

Current Runway Length Compared to ALP Goals

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Appendix H

Current Runway Length Compared to 3,000 Foot Goal and ALP Recommended Length

For Community Class Airports

Airport	Population (2010)	Runway Length 2014	3,000 or Longer?	Near Term/Ultimate Length Per ALP	Comments
ADAK	326	7,790	x		RSA upgrades under way
AKHIOK	71	3,120	x	3,120/3,300	
AKUTAN	1027	4,500	x	4,500	New airport in 2013 grant
ALEKNAGIK /NEW	219	2,040		None identified	To be connected by road to Dillingham Airport
ATKA	61	4,500	x	4,500/5,000	Extended runway in 2008 grant
CHIGNIK	91	2,600		2,600	Extended runway in 1992 grant
CHIGNIK LAGOON	78	1,810		None identified	
CHIGNIK LAKE	73	2,800		2,800	Extended runway in 1985 grant
CLARKS POINT	62	3,200	x	3,200	New airport in 2004 grant
EGEGIK	109	5,600	x	5,600	Extended runway in 2011 grant
EKWOK	115	3,319	x	3,300	New runway in 2004 grant
FALSE PASS	35	2,150		3,100	Extension costs into ocean very high
IGIUGIG	50	3,000	x	3,000	
KARLUK	37	2,000		2,000	
KING COVE	938	3,500	x	3,500	
KOKHANOK	170	3,300	x	3,300	Extended runway in 2005 grant
KOLIGANEK	209	3,000	x	3,300	Extension under way
LARSEN BAY	87	2,690		2,700	Extended runway in 1993 grant
LEVELOCK	69	3,281	x	3,281	New airport in 2000 grant
MANOKOTAK	442	3,300	x	4,000	New airport in 2007 grant
NAKNEK		2,012		3,200	Connected by road to King Salmon Airport
NELSON LAGOON	52	4,003	x	4,495	
NEW STUYAHOK	510	3,281	x	5,085	New airport in 2006 grant

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

Airport	Population (2010)	Runway Length 2014	3,000 or Longer?	Near Term/Ultimate Length Per ALP	Comments
NONDALTON	164	2,800		2,800	
OLD HARBOR	218	2,750		2,920	Runway constructed in 1992 grant - upgrades under way
OUZINKIE	161	3,300	x	3,300	New airport in 2013 grant
PEDRO BAY	42	3,000	x	None identified	Extended runway in 1995 grant
PERRYVILLE	113	3,300	x	3,300	Constructed runway in 2005 grant
PILOT POINT	68	3,280	x	5,052	New airport in 1999 grant
PORT HEIDEN	102	5,000	x	5,000	
PORT LIONS	194	2,200		2,350	
SAND POINT	976	5,213	x	5,214	Extended runway in 2004 grant
SOUTH NAKNEK	79	3,314	x	3,314	Constructed runway in 1996 grant
ST GEORGE	102	4,982	x	4,980	New airport in 1991 grant
ST PAUL ISLAND	479	6,500	x	6,496	
TOGIAK	817	4,400	x	4,400	
TWIN HILLS	74	3,000	x	None identified	
Runways over 3,000 feet			25		

For Regional Class Airports

Airport	Population (2010)	Runway Length 2014	Near Term/Ultimate Length Per ALP	Comments
COLD BAY	108	10,180	10,180	Extended RSA and shortened runway in 2011 grant
DILLINGHAM	2,329	6,404	6,800	Phase 1 of RSA extension in 2013 grant
ILIAMNA	109	5,086	5,086	Extended runway in 1997 grant
KING SALMON	374	8,901	8,901	Extended RSA in 2008 grant
KODIAK	6,130	7,533	7,533	RSA extension under way
UNALASKA	4,376	4,100	4,500	Extended runway in 2012 grant

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

APPENDIX I

Iliamna Lake Area Communities Freight/Fuel Delivery

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Appendix I

Freight/Fuel Delivery to Communities with Limited Barge Service

Community	Population	Runway Length	Freight Delivery	Fuel Delivery
Iliamna Lake Area Communities				
Igiugig	50	3,000	• General freight by air • Heavy freight via Williamsport on Cook Inlet, then 14 miles by road, then via Iliamna Lake barge service	• Fuel by air to Iliamna and barged on Iliamna Lake to communities
Kokhanok	170	3,300		
Pedro Bay	42	3,000		
Newhalen	160	5,086 (Iliamna Airport)	• General freight by air and trucked from Iliamna Airport • Heavy freight via Williamsport on Cook Inlet, then 14 miles by road, then via Iliamna Lake barge service to Iliamna, then trucked to Newhalen	• Fuel by air to Iliamna and trucked and pipeline to Newhalen
Nondalton	164	2,800	• No direct barge service. • Freight flown to Iliamna then via gravel road to river where residents must skiff or barge across. Bridge has been proposed.	• Fuel by air

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

Community	Population	Runway Length	Freight Delivery	Fuel Delivery
Nushagak River Communities				
Koliganek	209	3,000	• Via Nushagak River • Via air when river is low	• Via Nushagak River
Portage Creek	7 (seasonal)	3,000	• Via Nushagak River • Via air when river is low	• Via Nushagak River

Community	Population	Runway Length	Freight Delivery	Fuel Delivery
Chignik Lake	73	2,800	• Lightered from Chignik Lagoon	• Fuel by air

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

APPENDIX J

Runway Length Recommendations

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Appendix J

Runway Length Recommendations

Airport	Population (2010)	Runway Length 2014	Near Term/Ultimate Length Per ALP	SWATP Runway Length Recommendation	Comments
ADAK	326	7,790		Extend if future community and payload growth justifies, if feasible	RSA upgrades under way; terrain and water limit extension options
AKHIOK	71	3,120	3,120/3,300	3,300 feet ultimate	Consider low population
AKUTAN	1027	4,500	4,500	No change	New airport in 2013 grant
ALEKNAGIK /NEW	219	2,040	None identified	No change	To be connected by road to Dillingham Airport
ATKA	61	4,500	4,500/5,000	5,000 feet ultimate, depending on EAS/carrier requirements	Extended runway in 2008 grant; consider low population
CHIGNIK	91	2,600	2,600	No change	Extended runway in 1992 grant; further extension not practical
CHIGNIK LAGOON	78	1,810	None identified	No change	Extension not practical
CHIGNIK LAKE	73	2,800	2,800	No change	Extended runway in 1985 grant; further extension not practical
CLARKS POINT	62	3,200	3,200	No change	New airport in 2004 grant; reconsider if future fish haul requirements change
COLD BAY	108	10,180	10,180	No change	Extended RSA and shortened runway in 2011 grant
DILLINGHAM	2,329	6,404	6,800	Extend to 6,800 as part of RSA Phase 2 project	Phase 1 of RSA extension in 2013 grant
EGEGIK	109	5,600	5,600	No change	Extended runway in 2011 grant

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

Airport	Population (2010)	Runway Length 2014	Near Term/Ultimate Length Per ALP	SWATP Runway Length Recommendation	Comments
EKWOK	115	3,319	3,300	No change	New runway in 2004 grant
FALSE PASS	35	2,150	3,100	Erosion protection	Extension costs into ocean very high; consider low population and regional fishing role
IGIUGIG	50	3,000	3,000	No change	
ILIAMNA	109	5,086	5,086	No change	Extended runway in 1997 grant
KARLUK	37	2,000	2,000	No change	Short runway but very low population
KING COVE	938	3,500	3,500	No change	
KING SALMON	374	8,901	8,901	No change	Extended RSA in 2008 grant
KODIAK	6,130	7,533	7,533	No change	RSA extension under way
KOKHANOK	170	3,300	3,300	No change	Extended runway in 2005 grant; terrain may limit future extension
KOLIGANEK	209	3,000	3,300	Complete extension under way	Extension under way
LARSEN BAY	87	2,690	2,700	No change	Extended runway in 1993 grant
LEVELOCK	69	3,281	3,281	No change	New airport in 2000 grant
MANOKOTAK	442	3,300	4,000	4,000 foot ultimate	New airport in 2007 grant
NAKNEK	544	2,012	3,200	No change	Connected by road to King Salmon Airport
NELSON LAGOON	52	4,003	4,495	No change	
NEW STUYAHOK	510	3,281	5,085	5,085 foot ultimate	New airport in 2006 grant
NONDALTON	164	2,800	2,800	Extend to at least 3,000 feet if terrain allows	Seasonal fuel delivery only by air; creek and terrain at runway ends

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

Airport	Population (2010)	Runway Length 2014	Near Term/Ultimate Length Per ALP	SWATP Runway Length Recommendation	Comments
OLD HARBOR	218	2,750	2,920	2,920 foot ultimate; short/medium term priority	Runway constructed in 1992 grant - upgrades under way
OUZINKIE	161	3,300	3,300	No change	New airport in 2013 grant
PEDRO BAY	42	3,000	None identified	No change	Extended runway in 1995 grant
PERRYVILLE	113	3,300	3,300	No change	Constructed runway in 2005 grant
PILOT POINT	68	3,280	5,052	No change	New airport in 1999 grant; reconsider if future fish haul requirements change
PORT HEIDEN	102	5,000	5,000	No change	
PORT LIONS	194	2,200	2,350	Conduct Master Plan/siting study	Master Plan should confirm needs/runway location/feasibility
SAND POINT	976	5,213	5,214	No change	Extended runway in 2004 grant
SOUTH NAKNEK	79	3,314	3,314	No change	Constructed runway in 1996 grant
ST GEORGE	102	4,982	4,980	No change	New airport in 1991 grant
ST PAUL ISLAND	479	6,500	6,496	No change	
TOGIAK	817	4,400	4,400	No change	
TWIN HILLS	74	3,000	None identified	No change	
UGASHIK	12	3,100	3,100	No change	
UNALASKA	4,376	4,100	4,500	Ultimate 4,500 if feasible	Extended runway in 2012 grant

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

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APPENDIX K

Recommended Airport Approach Improvements

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Appendix K

Recommended Airport Approach Improvements

Airport	Approach Type	Carrier Support For Approach?	Approach Recommended By AASP?	Survey Completed?	Infrastructure Needed?
KODIAK	LP	Yes	Yes	Yes	No
KING COVE	LP	Yes		No	No. Terrain - LPV most likely will not work, LP may be feasible for lower minimums
OUZINKIE	LP, LPV			Yes	Yes, Certified Weather Station
LEVELOCK	LP, LPV			Yes	Yes, Certified Weather Station
EKWOK	LP, LPV			Yes	Yes, Certified Weather Station
TWIN HILLS	LP, LPV			No	Yes, Certified Weather Station
ALEKNAGIK /NEW	LP, LPV			No	Yes, Certified Weather Station, Runway Edge Lights for Night Operations and Prefer Runway >2400 (act.2040)
SAND POINT	LP	Yes	Yes	Yes	No
ATKA	LP			Yes*	No, LPV not feasible, LP could be possible but would not lower minimums much - maybe an approach from the South
NONDALTON	LP, LPV			No	Yes, Certified Weather Station
NELSON LAGOON	LP, LPV	Yes		No	No

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

Airport	Approach Type	Carrier Support For Approach?	Approach Recommended By AASP?	Survey Completed?	Infrastructure Needed?
NAKNEK	LP, LPV			No	Yes, Certified Weather Station, Prefer Runway >2400 (act.2000)
ST GEORGE	LP, LPV	Yes	Yes	Yes	No
SOUTH NAKNEK NR 2	LP, LPV			Yes	Yes, Certified Weather Station
PORTAGE CREEK	LP, LPV			No	Yes, Runway Edge Lights for Night Operations and Prefer Runway >2400 (act.1920)
UGASHIK/NEW	LP, LPV			No	Yes, Certified Weather Station, Runway Edge Lights for Night Operations
KODIAK MUNI	LP, LPV			No	Yes, Airport Layout Plan and Runway Edge Lights for Night Operations
KOKHANOK	LP, LPV			No	Yes, Certified Weather Station
EGEGIK	LP, LPV	Yes		No	No
NEW STUYAHOK	LP, LPV		Yes	Yes	No
PORT HEIDEN	LP, LPV	Yes		No	No
PILOT POINT	LP, LPV	Yes		No	No
TOGIAK	LP, LPV	Yes		Yes*	No
ADAK	LP, LPV		Yes	Yes	No
MANOKOTAK	LP, LPV		Yes	Yes	No

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

Airport	Approach Type	Carrier Support For Approach?	Approach Recommended By AASP?	Survey Completed?	Infrastructure Needed?
KOLIGANEK	LP, LPV			Yes*	No
IGIUGIG	LP, LPV	Yes		No	No
ST PAUL ISLAND	LP, LPV	Yes	Yes	Yes	No

Note: YES* - Survey is under contract, but not yet completed.

Source: Alaska Aviation System Plan, 2011-2014, Alaska Department of Transportation and Public Facilities

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APPENDIX L

Ferry System Operations and Challenges

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Southwest Transportation Plan Update

Marine

Southcoast Region Planning

August 2015

The Southwest Alaska Transportation Plan Update provides guidance for public transportation infrastructure development in Southwest Alaska over the next 20 years. This plan is a component of the State's Long Range Transportation Plan, Let's Get Moving 2030, which sets policies, procedures, and priorities for public transportation planning and development throughout the state.

Contents

EXECUTIVE SUMMARY:

Southwest Alaska is a large roadless, rural area with scattered small communities. It has a few commercial centers, such as, Dillingham, Unalaska, and Kodiak. Transportation in the region is provided by air carriers serving a network of remote, very small, community airports. The Alaska Marine Highway System (AMHS) serves Kodiak Island communities and provides seasonal service to communities along the south side of the Alaska Peninsula and Aleutian Islands as far west as Unalaska. Several barge lines and freight carriers also serve the area.

A 1980 transportation study provided a list of challenges; they remain valid:

Small, isolated populations	Little to no population growth
Severe weather	Long distances
Little demand	Little infrastructure
Limited resources	No urgent need

A. Maintain existing southwest service: RECOMMENDED

1. Operate the *Tustumena* and supplement year-round service with the *Kennicott*.
2. Replace the *Tustumena* with a "newer" state-of-the-art ferry (*Tustumena* Replacement Vessel - TRV) and supplement year-round service with the *Kennicott*.

Recommended				Annual M&O ($millions)[1]	
Existing	2015-2020	*Tustumena*	40 weeks	$13,197.3	**$20.2M**
		Kennicott	12 weeks	$7,045.8	
	2021-203_	TRV	40 weeks	$13,966.5	**$21.0M**
		Kennicott	12 weeks	$7,045.8	

The following additional service alternatives are not recommended.

B. Additional AMHS service around Kodiak Island: NOT RECOMMENDED

C. New Pribilof Islands service: NOT RECOMMENDED

D. New Central Aleutians service: NOT RECOMMENDED

E. New Bristol Bay service, AMHS or commercial: NOT RECOMMENDED

[1] Costs are planning level estimates.

Southwest Alaska Transportation Plan Update: Marine

General: The Southwest Alaska Transportation Plan Update provides guidance for public transportation infrastructure development in Southwest Alaska over the next 20 years. This plan is a component of the State's Long Range Transportation Plan, Let's Get Moving 2030, which sets policies, procedures, and priorities for public transportation planning and development throughout the state.

The Existing AMHS Transportation System

1) In terms of nautical miles, the distance is approximately 530 miles from Kodiak to False Pass, 160 miles from False Pass to Unalaska, 400 miles from Unalaska to Adak, 240 miles from Unalaska to Saint Paul, and 430 miles from Unalaska to Naknek. There are approximately 25,000 residents of the Lake and Peninsula Borough, Kodiak Island Borough, Bristol Bay Borough, Aleutians East Borough, Aleutians West Borough, and Pribilof Islands. Southwest Alaskans are distributed throughout the region in isolated communities on the mainland and major islands, separated by mountains and water. Travel between the communities within the region is restricted by geography, weather, and lack of connecting roads.

2) Distances (trackline* nautical miles):

From:	To:	Miles (Nautical)
Kodiak	False Pass	530
False Pass	Unalaska	160
Unalaska	Adak	400
Unalaska	Saint Paul	240
Unalaska	Naknek	430

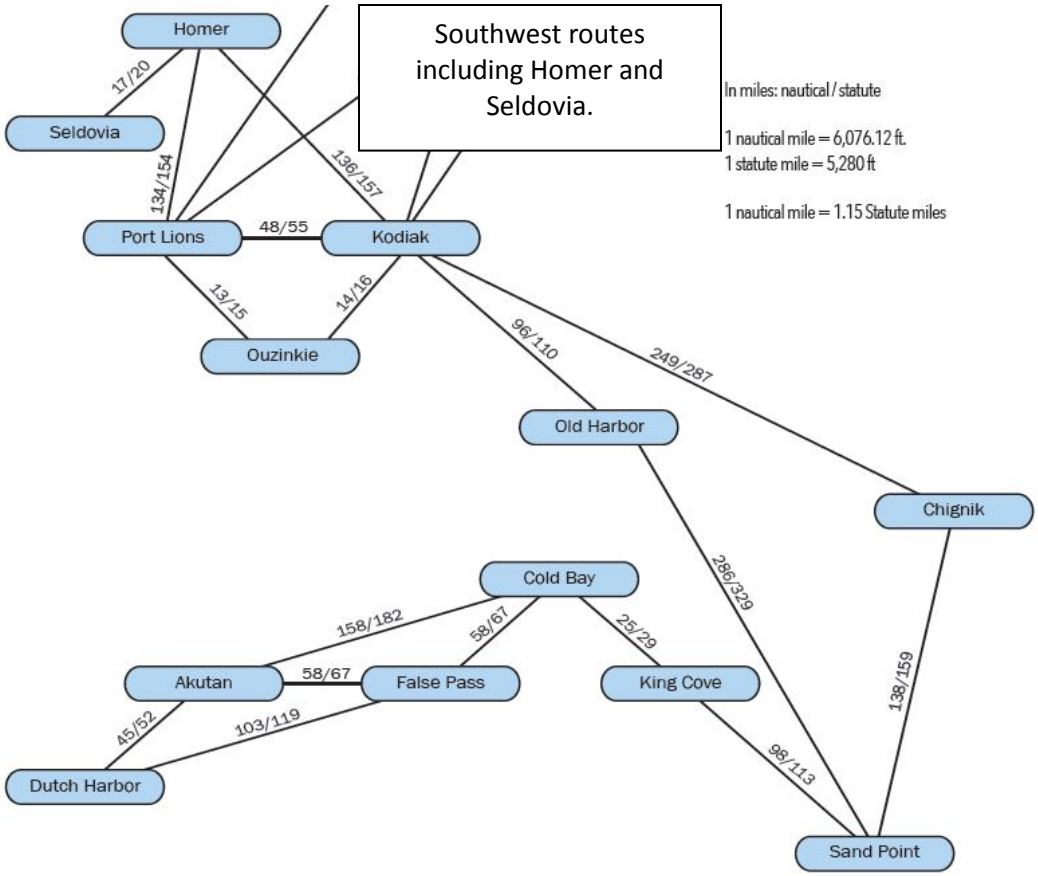
*Path on a chart that a ship intends to follow from one point to another

3) Facilities:

ADOT&PF maintains a transportation system that provides for travel between some communities on Kodiak Island, the southern Alaska Peninsula, and eastern Aleutian Islands. It also connects the region with the rest of the state and the continental transportation system. See Appendix A.

4) Routes:

The AMHS operates two ferries and serves 11 locations in plan area, and connects these locations to Homer on the Kenai Peninsula.



The Motor Vessel (M/V) *Tustumena* is one of two AMHS ferries certificated for ocean service. The other is the M/V *Kennicott* serving Southeast and Cross-Gulf routes. Thus their schedules must be meshed when overhauls, layups, or federal capital improvement projects take them out of revenue service.

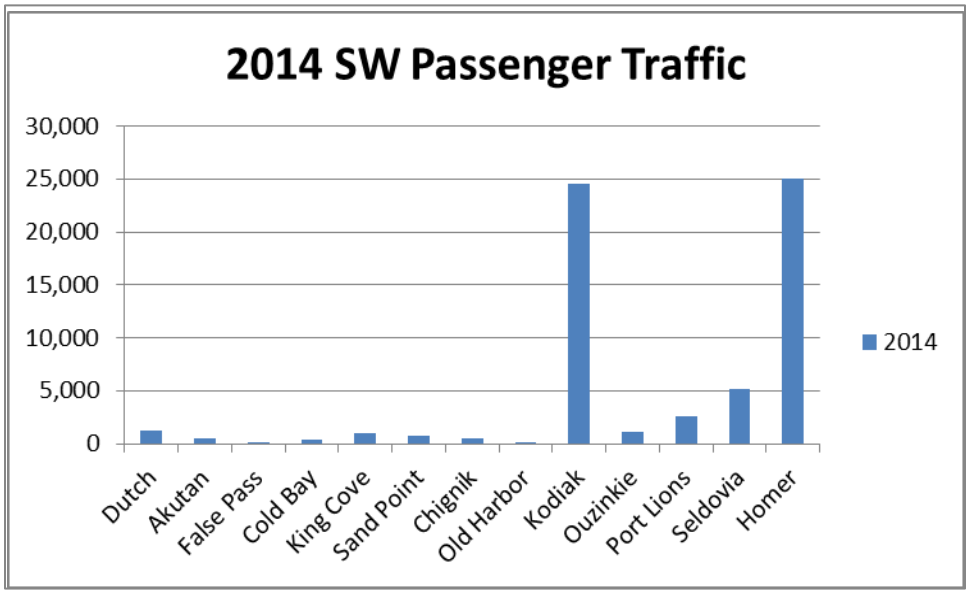
Tustumena makes seasonal (May-September) trips every two weeks through the area to Unalaska and while not "out west" runs a continuous circuit between Homer, Seldovia, Kodiak, Ouzinkie, and Port Lions. During the winter she runs a continuous circuit Kodiak, Ouzinkie, Port Lions, Seldovia, and Homer. She also makes several Cross-Gulf trips to relieve *Kennicott*.

Monthly Kodiak Service	Summer	Winter
Kodiak, Homer	15 round trips	14 round trips
Port Lions, Ouzinkie	Port Lions (6) Ouzinkie (4)	Seven round trips
Kodiak and ports southwest	Two round trips	None

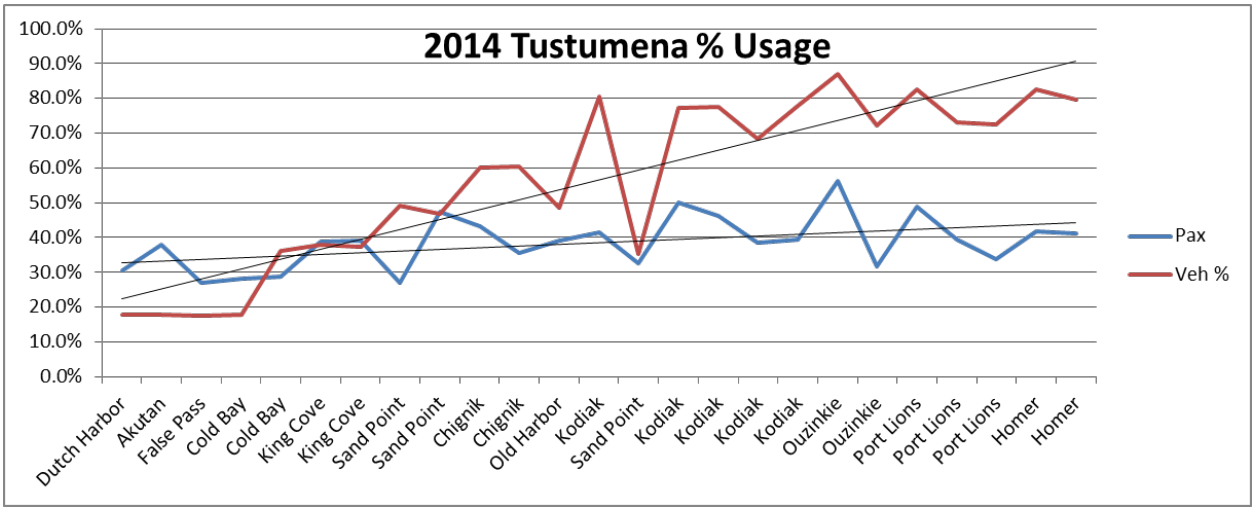
5) Link volume:

Link volume is used to establish a measure of capacity used, relative to the capacity provided. The table below shows the percent used to the different southwest

communities. A "link" is defined as a departure from one port and an arrival at the next. A complete trip usually consists of several links. For example, a passenger or vehicle going from Kodiak to Sand Point in one trip would typically travel on two links; "Kodiak to Chignik" and "Chignik to Sand Point." This passenger or vehicle would be counted as one on each of these links. Consequently, the link volume count includes both the through-traffic and the traffic embarking from the first port in the link pair.



Note: 2014 is indicative of other years with exception of 2013 when *Tustumena* was out of service.



Note: Some communities listed several times as they involve several links to different communities: ex. Cold Bay has links to False Pass and King Cove.

Link volume aboard the *Tustumena* decreases as the ship sails west and increases as she sails east. This is to be expected but leads to complaints of the people heading far west that there is no room to get on the ferry because it is full from Homer to Kodiak. AMHS is aware of the service congestion point.

See Appendix B for 2014 Southwest link volume.

6) For vessel planning purposes annual cost estimates are the sum of 40-weeks of revenue service each year along with six weeks of overhaul and six weeks of lay-up.

Recommended Ferry Service:

Preferred Alternative: Maintain existing southwest ferry service: RECOMMENDED

i. The existing southwest service provides routes from Homer to Seldovia, Kodiak, Port Lions, Ouzinkie, Old Harbor, Chignik, Sand Point, King Cove, Cold Bay, False Pass, Akutan and Dutch Harbor. Present funding levels are consistent with this alternative. The AMHS will continue to operate the *Tustumena* and supplement year-round service with the *Kennicott*.

ii. In 2021, replace the *Tustumena* with a "newer" state-of-the-art ferry (*Tustumena* Replacement Vessel - TRV) and supplement year-round service with the *Kennicott*. See further discussion on the TRV later in this study.

Existing				Annual M&O ($millions)[2]	
	2015-2020	*Tustumena*	40 weeks	$13,197.3	**$20.2M**
		Kennicott	12 weeks	$7,045.8	
	2021-203_	TRV	40 weeks	$13,966.5	**$21.0M**
		Kennicott	12 weeks	$7,045.8	

[2] Costs are planning level estimates.

Not Recommended Ferry Service Expansion

The following expansion scenarios are not recommended for consideration primarily due to lack of demand and current and future funding considerations:

1. Around Kodiak Island

   i) Kodiak communities without ferry service:

      (1) Akhiok (population 71)

      (2) Larsen Bay (population 87)

      (3) Karluk (population 37)

Communities	Distance	Time @ 12 knots
Akhiok to Kodiak	127 NM[3]	10.6 hours
Larsen Bay to Kodiak	87 NM	7.3 hours
Karluk to Kodiak	90 NM	7.5 hours
Karluk to Akhiok	72 NM	6.0 hours
Larsen Bay to Karluk	27 NM	2.3 hours

Note: 12 knots used for planning purposes to include maneuvering and mooring.

   ii) Marine Facilities: Is there a mooring facility capable of mooring an AMHS deep draft ferry?

	Dock Facilities		
Community	**Dock**	**Estimate**	**Feasible**
Akhiok	No	$12-20M	Yes
Karluk	No	-	No
Larsen Bay	No	$12-20M	Yes

   iii) Challenges:

      (1) Serving small, remote populations

      (2) Very little traffic demand

      (3) Service to new communities would take service from existing routes

      (4) High cost of service vessels

[3] Nautical miles

(5) Long distances between ports

(6) Personnel - Familiarization and pilotage

(7) Accessible port – Karluk is not accessible by:

(a) Deep-draft ferry

(b) Landing craft on a scheduled basis due to the exposed location of the beach and depths at the river entrance

iv) Options: Two options are available for the two villages

(1) Deep-draft, ocean-going service could be available if mooring facilities are constructed in Akhiok and Larsen Bay.

(2) Landing craft: not capable due to:

(a) Exposed waters in the Gulf of Alaska and Shelikof Strait.

(b) To slow

(c) Due to speed and rough water, unable to keep a schedule.

v) Traffic/Revenue/Cost

(1) Traffic

(a) Traffic demand is estimated based on using 10% of the village's population for passengers and for vehicles 3.3% (passenger to vehicle ratio of 3:1). Though for the three villages listed around Kodiak, continued vehicle demand is expected to be closer to zero after an initial onslaught of vehicles to the villages.

(b) AMHS Old Harbor (population 218) service shows roughly 5% of villagers travelling on the two trips to/from Kodiak and a similar percentage of vehicles. The higher vehicle count may come from the greater road miles that Old Harbor has compared to Akhiok, Larsen Bay, and Karluk.

(2) Revenue

(a) Estimated revenues could be based on the AMHS Annual Financial Report and estimated by dividing annual vessel revenues over annual vessel costs for *Tustumena* for the last 12 years which produces 38%.

(b) The reality of accurate revenue estimates for very small communities is at best a guess. Using 10% and 3.3% would provide the following for revenue traffic:

Community	Population	Passengers	Vehicles
Akhiok	71	7.1	2.3
Larsen Bay	87	8.7	2.6

(c) Ticket sales based on similar *distance* fares and a 19' vehicle and 30.2 hour circuit route Kodiak – Akhiok - Larsen Bay – Kodiak are shown below. 30.2 hour time includes inport time optimistically estimated at one hour per port (four hours total).

Community	Pax	Fare	Total	Veh	Fare	Total
Akhiok - Kodiak	8	$69	$552	3	$165	$495
Larsen Bay - Kodiak	9	$46	$414	3	$104	$312
One-way total			$966			$807
Grand Total	**$3,546 per round trip**					

(3) Cost

(a) *Tustumena*'s costs, broken down hourly equal $1,506/hour. The 30.2 hour circuit would cost approximately $45,500.

(b) Estimated loss per trip would be $42,000.

(c) This service is not cost effective for the amount of traffic she would carry.

vi) Recommendation: NOT RECOMMENDED

(1) No demand

(2) Little revenue

(3) High cost

(4) No marine facilities

(5) Anton Larsen Bay, 9-miles NW of the city of Kodiak (15 road miles), was mentioned as a possible "better" connection from the Shelikof Strait to Kodiak, but this is not possible. The bay is not suitable to safely navigate in a larger vessel as the entrance is strewn with rocks and only 150-feet wide. Extensive blasting and aids to navigation would be required. It also lacks any infrastructure and has a poor road to Kodiak. Port Lions would be the beneficiary of an Anton

Larsen service, but is already served by existing ferry service.

(6) Other transportation options are available.

Community	Airport	Air Service	Carriers
Akhiok	Gravel airstrip	To Kodiak	2
Karluk	Gravel airstrip	To Kodiak	2
Larsen Bay	Gravel airstrip	To Kodiak	2

2. Central Aleutians service

i) Communities without ferry service:

(1) Nikolski (population 18)

(2) Atka (population 68)

(3) Adak (population 283)

Community	Distance	Time @ 12 knots
Nikolski – Dutch Harbor	100 NM	8.4 hours
Atka to Dutch Harbor	308 NM	25.7 hours
Adak to Dutch Harbor	400 NM	33.3 hours
Nikolski to Atka	208 NM	17.3 hours
Atka to Adak	123 NM	10.3 hours

Note: 12 knots used for planning purposes to include maneuvering and mooring.

ii) Marine Facilities: Is there a mooring facility capable of mooring an AMHS deep draft ferry?

	Dock Facilities		
Community	Dock	Estimate	Feasible
Nikolski	No	-	No
Atka	Yes, upgrade	$10M	Yes
Adak	Yes, upgrade	$5M	Yes

iii) Challenges:

(1) Serving small, remote populations

(2) Very little traffic demand

(3) High cost of service vessels

(4) Long distances between ports

(5) Personnel - Familiarization and pilotage

(6) Accessible port – Nikolski is not accessible by a deep-draft ferry

iv) Options: One option is available for Atka and Adak.

(1) Mooring facility upgrades are required in Atka (dock extension/dolphins) and Adak (refurbishment) before ferry service may be considered.

(2) Deep-draft, ocean-going service: capable of providing service.

(a) The *Tustumena* and her replacement would be able to provide service to Atka and Adak. In rough numbers, *Tustumena*'s annual cost recovery rate for service (revenue/cost average over the last 12 years) is 38.4%. Though it is doubtful that service to the Central Aleutians would return 38%.

(b) Service would come from a revised schedule that would take service from other communities now receiving service.

v) Traffic/Revenue/Cost

(1) Traffic

(a) Traffic demand is estimated based on using 10% of the village's population for passengers and for vehicles 3.3% (passenger to vehicle ratio of 3:1). Though for the two villages, continued vehicle demand is expected to be closer to zero after an initial onslaught of vehicles to the villages.

(b) AMHS Old Harbor (population 218) service shows roughly 5% of villagers travelling on the two trips to/from Kodiak and a similar percentage of vehicles. Old Harbor, while not an identical situation to Central Aleutian service, is used in comparison as a remote community.

(2) Revenue

(a) Estimated revenues could be based on the AMHS Annual Financial Report and estimated by dividing annual vessel revenues over annual vessel costs for *Tustumena* for the last 12 years which produces 38%.

(b) The reality of accurate revenue estimates for very small communities is at best a guess. Using 10% and 3.3% would provide the following for revenue

traffic:

Community	Population	Passengers	Vehicles
Atka	68	6.8	2.2
Adak	283	28.3	8.5

(c) Ticket sales based on similar *distance* fares and a 19' vehicle and 77 hour circuit route Dutch-Atka-Adak-Atka-Dutch. 77 hour time includes inport time optimistically estimated at one hour per port (five hours total).

Community	Pax	Fare	Total	Veh	Fare	Total
Atka to Dutch Harbor	7	$171	$1,197	3	$453	$1,359
Adak to Dutch Harbor	29	$209	$6,061	9	$548	$5,202
One-way total			$7,258			$6,561
Grand Total	**$27,638 per round trip**					

(3) Cost

(a) *Tustumena*'s costs, broken down hourly equal $1,506/hour. The 77 hour circuit would cost approximately $115,962.

(b) Estimated loss per trip would be $88,300.

(c) Service is not cost effective for the amount of traffic she would carry.

vi) Recommendation: NOT RECOMMENDED

(1) No demand

(2) Little revenue

(3) High cost

(4) No marine facilities or facilities need extensive refurbishment.

(5) Other transportation options:

Community	Airport	Air Service	Carriers
Nikolski	Gravel airstrip	To Dutch	1
Atka	Gravel airstrip	To Dutch	1
Adak	Asphalt	To Anchorage	1

3. Pribilof Islands service

   i) Communities without ferry service:

      (1) Saint George (population 102)

      (2) Saint Paul (population (479)

Community	Distance	Time @ 12 knots
Saint George to Dutch Harbor	198 NM	16.5 hours
Saint Paul to Dutch Harbor	240 NM	20.0 hours
Saint George to Saint Paul	43 NM	3.6 hours

Note: Nautical miles. 12 knots used for planning purposes to include maneuvering and mooring.

   ii) Marine Facilities: Is there a mooring facility capable of mooring an AMHS deep draft ferry?

	Dock Facilities		
Community	**Dock**	**Estimate**	**Feasible**
Saint George	No	-	No
Saint Paul	No	-	No

Due to the inability to economically build suitable ice-strengthened breakwaters and deep-water docks in either community, ferry service is not feasible.

   iii) Challenges:

      (1) Serving small, remote populations

      (2) Very little traffic demand

      (3) High cost of service vessels

      (4) Long distances between ports

      (5) Personnel - Familiarization and pilotage

(6) Accessible port – neither community has an accessible port for a deep-draft ferry

iv) Options:

(1) Mooring facilities are required in each port before ferry service may be considered.

(2) If suitable facilities are built, deep-draft, ocean-going service is possible.

(a) The *Tustumena* and her replacement would be able to provide service to the Pribilofs. In rough numbers, *Tustumena*'s annual cost recovery rate for service (revenue/cost average over the last 12 years) is 38.4%. Though it is doubtful that service to the Pribilofs would return 38%.

(b) Service would come from a revised schedule that would take service from other communities now receiving service.

v) Traffic/Revenue/Cost

(1) Traffic

(a) Traffic demand is estimated based on using 10% of the village's population for passengers and for vehicles 3.3% (passenger to vehicle ratio of 3:1). Though for the two villages, continued vehicle demand is expected to be closer to zero after an initial onslaught of vehicles to the villages.

(b) AMHS Old Harbor (population 218) service shows roughly 5% of villagers travelling on the two trips to/from Kodiak and a similar percentage of vehicles. Old Harbor, while not an identical situation to Pribilof service, is used in comparison as a remote community.

(2) Revenue

(a) Estimated revenues could be based on the AMHS Annual Financial Report and estimated by dividing annual vessel revenues over annual vessel costs for *Tustumena* for the last 12 years which produces 38%.

(b) The reality of accurate revenue estimates for very small communities is at best a guess. Using 10% and 3.3% would provide the following for revenue traffic:

Community	Population	Passengers	Vehicles
Saint George	102	10.2	3.1
Saint Paul	479	47.9	15.8

(c) Ticket sales based on similar *distance* fares and a 19' vehicle and 45.2 hour circuit route Dutch-Saint George-Saint Paul-Saint George-Dutch. 45.2 hour time includes inport time optimistically estimated at one hour per port (five hours total). An additional revenue line is included for intra-island service.

Community	Pax	Fare	Total	Veh	Fare	Total
St George to Dutch Harbor	11	$94	$1,034	4	$309	$1,236
St Paul to Dutch Harbor	48	$116	$5,568	16	$249	$3,984
St George to St Paul	59	$33	$1,947	20	$60	$1,200
One-way total			$8,549			$6,420
Grand Total	**$29,938 per round trip**					

(3) Cost

(a) *Tustumena*'s costs, broken down hourly equal $1,506/hour. The 45.2 hour circuit would cost approximately $68,100.

(b) Estimated loss per trip would be $38,100.

(c) Service is not cost effective for the amount of traffic she would carry.

vi) Recommendation: NOT RECOMMENDED

(1) No demand

(2) Little revenue

(3) High cost

(4) No marine facilities or facilities need extensive refurbishment.

(5) Other transportation options:

Community	Airport	Air Service	Carriers
St Paul	Asphalt	To Anchorage	1
St George	Asphalt	To Anchorage	1

4. Bristol Bay service
Due to the shoal channels and approaches to many of the communities a deep-draft ferry

is not the vessel of choice for service. A dedicated landing craft is the only vessel capable of providing scheduled service in Bristol Bay. Bristol Bay also offers special challenges in trying to coordinate ferry service to existing southwest AMHS ferry service.

i) Communities without ferry service:

(1) Dillingham (population 2,329)

(2) Naknek (population 432)

(3) Egegik (population109)

(4) Pilot Point (population 80)

(5) Port Heiden (population 102)

(6) Port Moller (population 0)

(7) Nelson Lagoon (population 52)

(8) Cannery Point, Herendeen Bay (population 0). Note: not a community, but a location for a ferry terminal at the site of an abandoned cannery.

Community	Distance	Time @ 12 knots
Dillingham to Naknek	84 NM	7 hours
Naknek	-	-
Egegik to Naknek	54 NM	4.5 hours
Pilot Point to Naknek	92 NM	7.7 hours
Port Heiden to Naknek	103 NM	8.6 hours
Port Moller – to Naknek	212 NM	17.7 hours
Nelson Lagoon to Naknek	212 NM	17.7 hours
Cannery Point to Naknek	230 NM	19.2 hours

Note: Nautical miles. 12 knots used for planning purposes to include maneuvering and mooring.

ii) Marine Facilities: Is there a mooring facility capable of mooring an AMHS deep draft ferry? Is there a suitable location for a landing craft facility?

	Dock	Landing Craft Facility		
Community	**Dock**	**Landing craft facility**	**Estimate landing fac.**	**Feasible**
Dillingham	No	No	$1-2M	Yes
Naknek	No	No	$1-2M	Yes

Egegik	No	No	$1-2M	Yes
Pilot Point	No	No	$1-2M	Yes
Port Heiden	No	No	$1-2M	Yes
Port Moller	No	No	$1-2M	Yes
Nelson Lagoon	No	No	$1-2M	Yes
Cannery Point	No	No	$1-2M	Yes

iii) Challenges:

(1) Serving small, remote populations

(2) Suitable deep-draft facilities are not economic to build. Landing craft facilities are required in each port before landing-craft ferry service may be considered.

(3) Very little traffic demand. Mostly seasonal. The greatest activity in the Bristol Bay area is in the summer. There is very little activity in the winter compared to the summer.

(4) In 2013, air carriers flew 5,039 passengers between Naknek (King Salmon) and Dillingham. The air traffic was somewhat seasonal, but was active all year long. A seasonal ferry (22-weeks during the summer) with the capacity of 149 passengers could carry 8,195 passengers on voyage between Naknek and Dillingham. One-way air fare is $190 and about an hour flight. The ferry passenger fare is estimated at $63 for the over seven hour voyage.

(5) Passengers using the ferry would take away (competition) from the air carriers.

(6) Transport of fish is already well-established with aircraft and packers.

(7) No hubs established. Dillingham and Naknek are the two active ports.

(8) No routes established or indicated.

(9) The great distances between communities would require a ferry with a 24-hour crew (not a 12-hour dayboat). The distances are too great for a ferry to daily "hub" from Dutch Harbor or Dillingham and serve Bristol Bay ports. None of the point-to-point round-trip routes can be served in under 12-hours. The 12-hours crew-day limit is the rough cut-off for AMHS "dayboat" crews on a ferry without crew accommodations. The next step to provide ferry service would be a ferry with a 24-hour AMHS crew requiring crew accommodations and food services.

(10) A circuit route ferry would require three days to make the circuit through all the ports southwest of Naknek and require a 24-hour crew.

(11) Naknek to Dillingham service would be a minimum 14-hour round trip.

(12) Hub and spoke service is not feasible to distances.

(13) High costs and low returns.

(14) Lack of ferry terminal facilities and additional construction funding.

(15) No shallow draft vessels available

(16) Populations in Bristol Bay are seasonal (greater in the summer) and very small. Demand is unknown. Ferry service (estimated tariffs based on similar length runs in the current AMHS) would provide an opportunity to get cars and other large products to remote locations, but barge service already does this.

(17) Fishing activity in Bristol Bay is seasonal (summer only). Salmon shippers have an efficient way to move product now. Adding a ferry for transshipping (transfer cargo from one ship or other form of transport to another) adds time. Adding more transfers is less efficient and not necessarily faster. Shipping product from Naknek to Dillingham, and then flying it to Anchorage is not as efficient as flying it directly from Naknek to Anchorage.

(18) Established transportation services already in place and functioning.

(19) High cost of service vessels

(20) Long distances between ports

(21) Marine personnel - Familiarization and pilotage

(22) Accessible ports – only by landing craft

(23) Navigation: For vessels trying to maintain a schedule, navigation in Bristol Bay is difficult with extremes in weather, currents, tides, and navigational aids.

(a) U.S. Coast Pilot No. 9 discusses navigational difficulties associated with Bristol Bay including shoal water, winds, high currents, barrier sandbars, shifting channels, and extreme tidal ranges from minus 3-feet tide to plus 25-feet tide. At times, “tramp steamers” (to several hundred feet long) may enter ports at high tide to discharge and pick-up cargo.

(b) Aids to Navigation (ATON) are maintained by the U.S. Coast Guard and are placed in two categories: year-round lights and buoys; and seasonal (May 1 –

Sep 30) lights and buoys. Requests for more/new ATON in Bristol Bay would go to the U.S. Coast Guard 17th Coast Guard District. This would take several years.

	ATON	
Location	**Lights**	**Buoys**
Dillingham (Kuskokwim River)	Yes	Seasonal
Naknek River	Yes	No
Egegik Bay	No	No
Pilot Point (Ugashik Bay)	No	No
Port Heiden	No	No
Port Moller	Yes	Year round
Hague Channel	No	Year round
Herendeen Bay, Johnston Channel	No	No
Cannery point	No	No
Nelson Lagoon	Yes	No

(24) Preliminary review of use of specific ships to serve ports in Bristol Bay has been done.

(a) Deep draft ferries similar to *Tustumena* (and replacement) draw too much water for shallow channels in Bristol Bay ports and approaches to ports and are not suitable for this service.

(b) Landing craft – good potential, but limited in speed, seakeeping, and passenger and crew accommodations. Seasonal service due to ice and extreme winter weather.

iv) Options: Around Bristol Bay service:

(1) In 1992, AMHS used a 125-foot contract landing craft, the M/V *Nunaniq*, for service between Homer and Kodiak, 136 nautical miles. The landing craft had a "passenger-pod" with airline-style seating, vending machines, and coins machines installed under the bridge.

(2) Bristol Bay requires a stand-alone ferry system needing a one-of-a-kind shallow draft ferry. A suitable ferry would be a landing craft, similar in size, capacity, and crew to a U.S. Army LCU-2000 (175' x 42' x 9', crew of 13) carrying 15 vehicles and 149 passengers. This class was investigated as they are ocean rated and built to U.S. Coast Guard standards. Modifications would be required to a surplus LCU. Currently, there are no suitable U.S. built landing craft available and no shipyards are building them. Estimated annual cost would be $4.2M.

(3) Coordinating a "stand-alone" Bristol Bay system with the existing southwest AMHS system might be as "simple" as building an 11-mile very-low volume road from Cannery Point, Herendeen Bay (vicinity Port Moller) to Albatross Anchorage, Balboa Bay (17-miles north of Sand Point) and building one dock at the end of the road in Albatross Anchorage. The Cannery Point terminus would use an improved beach landing. Connecting the Bristol Bay ferry route to the current AMHS route south of the Alaska Peninsula would require a connection every two weeks to form a continuous marine system to southcentral and southeast Alaska as well as the Lower 48:

(a) 11-mile, very-low volume road link with turn-outs from the north side of the Alaska Peninsula to south side (Herendeen Bay to Albatross Anchorage) following the 100-yr old foot path.

(b) Ferry terminal at each end:

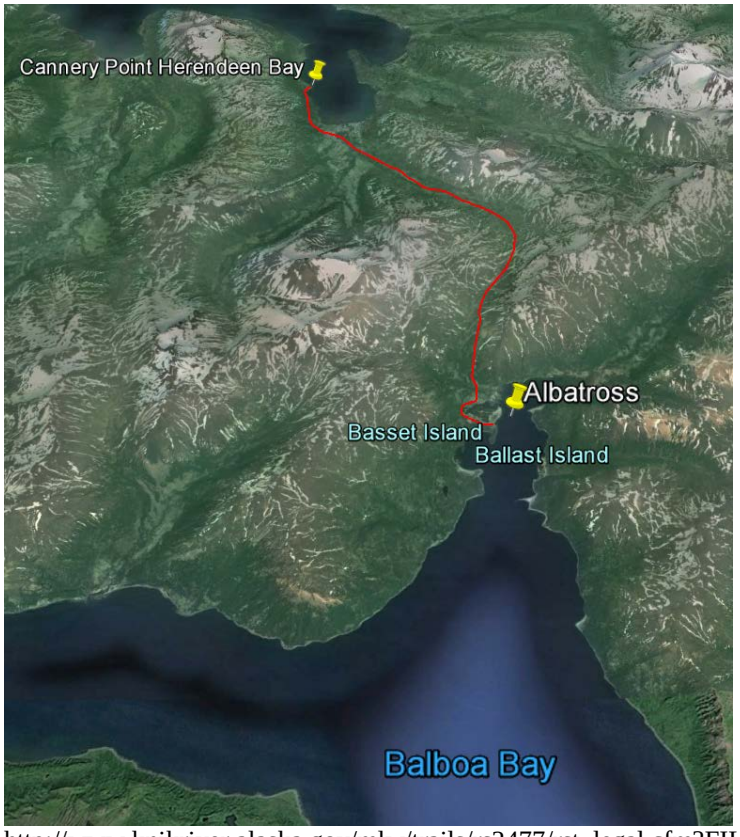
(i) Cannery Point – improved beach launch ramp at the site of a late 1910s-1920s cannery.

(ii) Albatross Anchorage (west side) – dock suitable for AMHS deep draft ferry.

(c) The Bristol Bay landing craft would drop off customers at Cannery Point and they would travel to Albatross Anchorage ferry terminal for pickup by the AMHS ferry or other service to Sand Point (17 miles) to await current AMHS service. The two week schedules would need coordination.

(4) A very rough estimate for the connection:

Facility	Estimated cost
Albatross Anchorage Dock	$12-20M
Cannery Point Landing	$1-2M
11-mile very low volume road @ $1.6M/mile	$17.6M
Total	**$30.1-39.6M**



http://www.knikriver.alaska.gov/mlw/trails/rs2477/rst_legal.cfm?FILE_NUMBER=397

v) Traffic/Revenue/Cost

(1) Traffic

(a) Traffic demand is estimated based on using 10% of the village's population for passengers and for vehicles 3.3% (passenger to vehicle ratio of 3:1). Though for the remote communities, continued vehicle demand is expected to be closer to zero after an initial onslaught of vehicles.

(b) AMHS Old Harbor (population 218) service shows roughly 5% of villagers travelling on the two trips to/from Kodiak and a similar percentage of vehicles. Old Harbor, while not an identical situation to Bristol Bay service, is used in comparison as a remote community.

(2) Revenue

(a) Estimated revenues could be based on the AMHS Annual Financial Report and estimated by dividing annual vessel revenues over annual vessel costs for *Tustumena* for the last 12 years which produces 38%.

(b) The reality of accurate revenue estimates for very small communities is at best a guess. Using 10% and 3.3% would provide the following for revenue traffic (* are estimates):

Community	Population	Passengers	Vehicles
Dillingham	2,329	43.2*	14.3*
Naknek	432	43.2	14.3
Egegik	109	10.9	3.6
Pilot Point	80	8.0	2.6
Port Heiden	102	10.2	3.4
Port Moller	0	5.0*	0*
Nelson Lagoon	52	5.2	1.7
Cannery Point**	0	10.0*	3.3

* Estimated traffic based on Naknek.
** Cannery Point pax/veh are transfers from the south side.

(c) Naknek-Dillingham service: Homeported in Naknek, service Naknek-Dillingham ticket fares are based on similar *distance* fares and a 19' vehicle and day costs for the ferry route. 15 hour round trip time includes inport time optimistically estimated at one hour per port. Cost $11,500/day. Revenues equal $8,500 for the round trip. Loss each trip ~$3,000.

(d) Naknek-Cannery Point service: Homeported in Naknek, service Naknek-Cannery Point and communities in between ticket fares are based on similar *distance* fares and a 19' vehicle and day costs for the ferry route. 96 hour round trip time includes inport time optimistically estimated at one hour per port with the exception of Cannery Point where the ferry would await passengers and vehicles driving over from the Albatross Anchorage ferry terminal. Cost $11,500/day = $46,000. Revenues equal $12,400 for the round trip. Loss each trip ~$33,600.

Community	Passenger		Fare	Total		Vehicle		Fare	Total
Dillingham - Naknek	43.2		$63	$2,722		14.3		$107	$1,530
Naknek - Dillingham		43.2	$63	$2,722			14.3	$107	$1,530
				$5,443					$3,060
			Round trip	$8,503					

Community	Passenger		Fare	Total		Vehicle		Fare	Total	
	NE bound	SW bound		NE bound	SW bound	NE bound	SW bound		NE bound	SW bound
Egegik - Naknek	5.5		$35	$193		1.8		$72	$130	
Naknek-Egegik		5.5			$193		1.8			$130
Egegik - Cannery	5.5		$116	$638		1.8		$309	$556	
Cannery - Egegik		5.5			$638		1.8			$556
Pilot Point - Naknek	4.0		$72	$288		1.3		$174	$226	
Naknek - Pilot Point		4.0			$288		1.3			$226
Pilot Point - Cannery	4.0		$116	$464		1.3		$309	$402	
Cannery - Pilot Point		4.0			$464		1.3			$402
Port Heiden - Naknek	5.1		$53	$270		1.7		$121	$206	
Naknek - Port Heiden		5.1			$270		1.7			$206
Port Heiden - Cannery	5.1		$69	$352		1.7		$165	$281	
Cannery - Point Heiden		5.1			$352		1.7			$281
Port Moller - Naknek	2.5		$116	$290		0.0		$309	$0	
Naknek - Port Moller		2.5			$290		0.0			$0
Port Moller - Cannery	2.5		$35	$88		0.0		$66	$0	
Cannery - Port Moller		2.5			$88		0.0			$0
Nelson Lagoon - Naknek	2.6		$116	$302		0.9		$309	$278	
Naknek - Nelson Lagoon		2.6			$302		0.9			$278
Nelson Lagon - Cannery	2.6		$35	$91		0.9		$66	$59	
Cannery - Nelson Lagoon		2.6			$91		0.9			$59
Cannery - Naknek	5.0		$116	$580		1.7		$309	$525	
Naknek Cannery		5.0			$580		1.7			$525
				$3,555	$3,555				$2,663	$2,663

NE Bound	$6,218		$12,435
SW Bound		$6,218	

(3) Cost

(a) The landing craft costs equal ~$11,500 per day or for the entire year ~$4,217,000.

(b) Estimated revenues per year would be ~$595,900.

(c) Loss each year would be ~$3,621,100 per year

(d) Service is not cost effective for the amount of traffic she would carry.

vi) Recommendation: NOT RECOMMENDED

(1) No demand

(2) Little revenue

(3) High cost

(4) No marine facilities or facilities need extensive refurbishment.
   (a) Estimated landing craft facility $7M – 14M

   (b) Herendeen Bay to Albatross Anchorage connection $31.1M - $39.6M

   (c) Suitable landing craft – no estimate

(5) Passenger comfort for two-day trip from Naknek to Cannery Point:

   (a) Airline-style seating

   (b) Vending machines and micro-wave food

   (c) No staterooms

   (d) Limited facilities

(6) Other transportation options:

Community	Airport	Air Service	Carriers
Dillingham	Asphalt	To various	Various
Naknek (King Salmon)	Asphalt	To various via King Salmon	Various
Egegik	Gravel airstrip	To King Salmon	1
Pilot Point	Gravel airstrip	To King Salmon	1
Port Heiden	Gravel airstrip	To King Salmon	1
Port Moller	Gravel airstrip	To Cold Bay	1
Nelson Lagoon	Gravel airstrip	To Cold Bay	1

5. Southern Alaska Peninsula service

   i) Communities without ferry service:

   (1) Chignik Lake (population 73)

   (2) Chignik Lagoon (population (78)

(3) Perryville (population 113)

(4) Ivanof Bay (population 7)

	Distance to Sand Point	Time @ 12 knots
Chignik Lagoon	125 NM	10.4 hours
Chignik Lake	-	-
Perryville	65 NM	5.4 hours
Ivanof Bay	59 NM	4.9 hours
Albatross Anchorage	17 NM	1.4 hours

Note: Nautical miles. 12 knots used for planning purposes to include maneuvering and mooring.

ii) Marine Facilities: Is there a mooring facility capable of mooring an AMHS deep draft ferry?

	Dock Facilities		
Community	**Dock**	**Estimate**	**Feasible**
Chignik Lake	No	-	No
Chignik Lag	No	-	No
Perryville	No	$12-20M	Yes
Ivanof Bay	No	$12-20M	Yes

iii) Challenges:

(1) Serving small, remote populations

(2) No traffic demand

(3) High cost of service vessels

(4) Long distances between ports

(5) Personnel - Familiarization and pilotage

(6) Accessible port – Due to the inability to safely transit the waterways to Chignik Lake and Chignik Lagoon, ferry service is not contemplated.

iv) Options:

(1) Mooring facilities required in Perryville and Ivanof Bay before ferry service may be considered.

(2) If suitable facilities are built, deep-draft, ocean-going ferries is possible.

(a) The *Tustumena* and her replacement would be able to provide service along the south side of the Alaska Peninsula.

(b) Service would come from a revised schedule that would take service from other communities now receiving service.

v) Traffic/Revenue/Cost

(1) Traffic

(a) Traffic demand is estimated based on using 10% of the village's population for passengers and for vehicles 3.3% (passenger to vehicle ratio of 3:1). Though for the two communities, continued vehicle demand is expected to be closer to zero after an initial onslaught of vehicles.

(b) AMHS Old Harbor (population 218) service shows roughly 5% of villagers travelling on the two trips to/from Kodiak and a similar percentage of vehicles. Old Harbor, while not an identical situation to Pribilof service, is used in comparison as a remote community.

(c) The reality of the situation is that service would be infrequent and would come at a cost to other larger communities that would receive less service.

(2) Revenue

(a) Estimated revenues could be based on the AMHS Annual Financial Report and estimated by dividing annual vessel revenues over annual vessel costs for *Tustumena* for the last 12 years which produces 38%.

(b) The reality of accurate revenue estimates for very small communities is at best a guess. Using 10% and 3.3% would provide the following for revenue traffic:

Community	Population	Passengers	Vehicles
Chignik Lake	73	-	-
Chignik Lagoon	78	-	-
Perryville	113	11.3	3.7
Ivanof Bay	7	1	0

(c) Ticket sales based on similar *distance* fares and a 19' vehicle.

To Sand Point:

Community	Pax	Fare	Total	Veh	Fare	Total

Perryville	12	$35	$420	4	$72	$288
Ivanof Bay	1	$35	$35	0	$72	0
One-way total			$455			$288
Grand Total	**$1,426 per round trip**					

To Kodiak

Community	**Pax**	**Fare**	**Total**	**Veh**	**Fare**	**Total**
Perryville	12	$171	$2,052	4	$453	$1,812
Ivanof Bay	1	$171	$171	0	$453	0
One-way total			$2,223			$1,812
Grand Total	**$8,070 per round trip**					

(3) Cost

(a) *Tustumena*'s costs would not increase as these communities are along her scheduled route. Several hours would be needed in each port, but these could be made up by reducing inport times at other communities.

(b) Estimated profit per trip would be $9,496.

(c) Service could be included if mooring facilities were built.

vi) Recommendation: NOT RECOMMENDED

(1) No marine facilities. Construction of marine facilities is not cost effective for these small communities.

(2) No demand

(3) Some revenue

(4) Other transportation options:

Community	**Airport**	**Air Service**	**Carrier**
Chignik Lagoon	Gravel airstrip	King Salmon	1
Chignik Lake	Gravel airstrip	King Salmon	1
Perryville	Gravel airstrip	King Salmon	1
Ivanof Bay	Seaplane base	Charter	0

Southwest Marine Alternatives:

Alternative 1 – Preferred: Maintain Existing service:

Operate *Tustumena* as scheduled and have *Kennicott* provide service when *Tustumena* is in a federal capital improvement project.

2021 - Replace *Tustumena* with the *Tustumena* Replacement Vessel – TRV.

2015-2020:

52 weeks of existing service:
- *Tustumena* 40-weeks Homer to Dutch Harbor
- *Kennicott* 12-weeks relief for *Tustumena* Homer to Kodiak

- Estimated operations and maintenance ship cost for this service is: $20,200,000 per year.

2021-2035:

52 weeks of existing service:
- TRV, 40-weeks Homer to Dutch Harbor
- *Kennicott* 12-weeks of relief for TRV Homer to Kodiak.

- Estimated operations and maintenance ship cost for this service is: $21,000,000 per year.

Alternative 2 – *Tustumena* and *Tustumena* Replacement Vessel - TRV

Expanding the system, particularly between Kodiak and Homer with a dedicated second ferry was not considered a viable alternative. Operating both *Tustumena* and the *Tustumena* Replacement Vessel – TRV is not feasible due to:

1. *Tustumena* is at the end of her service life. There has been much discovery work on *Tustumena* in all of her recent yard visits (for example: open and inspect an item and find greater deterioration than expected). She will be retired from service when her replacement arrives.

2. There is no affordable identified need for a second southwest ferry

3. If *Tustumena* remains, she would also need immediate replacement requiring another new ferry.

4. Continually growing the fleet size by replacing, but then not retiring the replaced vessel, is inconsistent with the current budget climate.

5. While it does allow more service to be provided, it does not help the system contain cost and become more self-sustaining.

Alternative 3 – Bristol Bay

Bristol Bay Service is not recommended due to lack of demand and present and future budget considerations.

Procure a landing craft for 22-weeks of summer service in Bristol Bay ports.

- 22 weeks of operations	$2,314,900
- 2 weeks overhaul	$79,200
- 28 weeks lay-up	$817,600
- Risk management, leave, other	$1,005,300

- Estimated operations and maintenance ship cost for this service is:
$4,217,000 per year.

Issues and challenges of private commercial ferry service in Bristol Bay

1. Challenges for a private commercial ferry are identical to a state provided system

    i) Expected low traffic projections based on the small population centers.

    ii) There is no existing infrastructure in place and a private ferry operator would have to establish service locations and get appropriate permits for infrastructure and operations.

    iii) Private ferries, as well as AMHS, would likely lack redundancy in operational vessels. It is likely that only one ferry would be used as keeping a second ferry available in a "lay-up" status would not be cost effective. If ferry service was lost due to unscheduled maintenance or a major casualty to the vessel there would be no back-up.

    iv) Scheduling.

2. Exceptions would be:

    i) Vessel would be available for other service in the off season. The operator may find use for the vessel in other locations in Alaska or elsewhere.

    ii) Procurement regulations may be easier.

    iii) U.S. Coast Guard manning regulations may be the same.

    iv) Union or non-union requirements may create different manning standards.

Barge service

Barge service is still the most efficient means of moving vehicles to remote communities in Bristol Bay. Additionally, in the *Southwest Transportation Plan Update: Phase 1 Report*, a barge operator stated that additional barge service was available, but there was no demand.

Barge

Northland		**Vehicle (19')**	**Pax/Air**	**Cabin/Hotel**	**Food**	**Total**
Seattle	Naknek	$2,984.08	$487.00	$0.00	$60.00	$3,531.08
Vehicle arrival 10-15 days. Passenger flies in 1 day. Food @ $60 per diem rate.						

Ferry

AMHS		**Vehicle (19')**	**Pax**	**Cabin/Hotel**	**Food**	**Total**
Seattle	Kodiak	$1,783.00	$667.00	$168.00	$330.00	$2,948.00
Kodiak	Albatross	$453.00	$171.00	$181.00	$90.00	$895.00
Cannery	Naknek	$309.00	$116.00	-	$90.00	$515.00
		$2,545.00	$954.00	$349.00	$510.00	$4,358.00
Minimum 9.5-day trip and unknown lay-over in Kodiak. Food @ $60 per diem.						

Barge Service Western Alaska

	Samson	**AML**	**Northland**	**Crowley**
Kodiak	Bi-weekly			
King Cove	Bi-weekly			
Dutch Harbor	Bi-weekly	Varies		
Port Moller		Seasonal		
Egegik		Seasonal		
Naknek		Varies		Fuel
Villages			Seasonal	

Motor Vessel (M/V) *Tustumena* replacement project

M/V *Tustumena* Refurbishment/Replacement: The operating conditions along the Gulf of Alaska and the Pacific Ocean limit vessel types that can serve the area. The *Tustumena* is well-suited for the area but has been in service since 1964, raising concerns about increasing maintenance costs and service interruptions. Any replacement vessel would also need to be accommodated at existing docking facilities, or facilities would need to be improved to match new vessel requirements. The AMHS has one aging, dedicated, ferry for Southwest, the *Tustumena* (built 1964). A replacement ferry is already in the works:

http://www.dot.state.ak.us/amhs/tusty_replace/doc/tusty_design_study.pdf

AMHS' current plans for replacement of the *Tustumena* are available:

http://www.dot.state.ak.us/amhs/tusty_replace/index.shtml
http://www.dot.state.ak.us/amhs/tusty_replace/doc/tusty_recon_report.pdf
http://www.dot.state.ak.us/amhs/tusty_replace/doc/tusty_replace_present.pdf

The Department is currently designing the *Tustumena* replacement vessel. The ship serves the communities of South Central, Kodiak Island and Southwest Alaska. It is one of two ocean class vessels in the Alaska Marine Highway System (AMHS) fleet. Because of its size and design, it is the only AMHS vessel that is capable of serving all 13 ports of call between Homer and Unalaska. Retiring and replacing the *Tustumena* with a vessel that is equally, if not more, versatile and seaworthy will provide reliable marine transportation service well into the future for the communities, residents and businesses in South Central, Kodiak Island and Southwest Alaska.

With planning level estimates, *Tustumena*'s replacement will be slightly larger in size and capacity. She will also have a higher service speed. Revenues are arguable as some would argue "more room = more traffic = economic development = more revenue" while others might argue "level population = no change in frequency = no change". Population trends over the next 20-years are expected flat (Alaska Department of Labor and Workforce Development).

The Department will accept public comments at any time throughout the *Tustumena* Replacement Project. To submit your comment, please email dot.amhs.tustumenareplacement@alaska.gov.

The Department recently accepted public comment specifically regarding the Tustumena Replacement Vessel Design Study Report through January 9, 2015. All comments received will be reviewed and incorporated into the final design to the extent feasible.

This time frame was established so that public comments can be used in development of the project. Please submit any future comments to the email address above.

The preliminary project schedule moving forward is:

i) Reconnaissance Report — March 2014

ii) Public Participation — April-May 2014

iii) Environmental Document — Summer 2014

iv) Design Study Report — Fall 2014

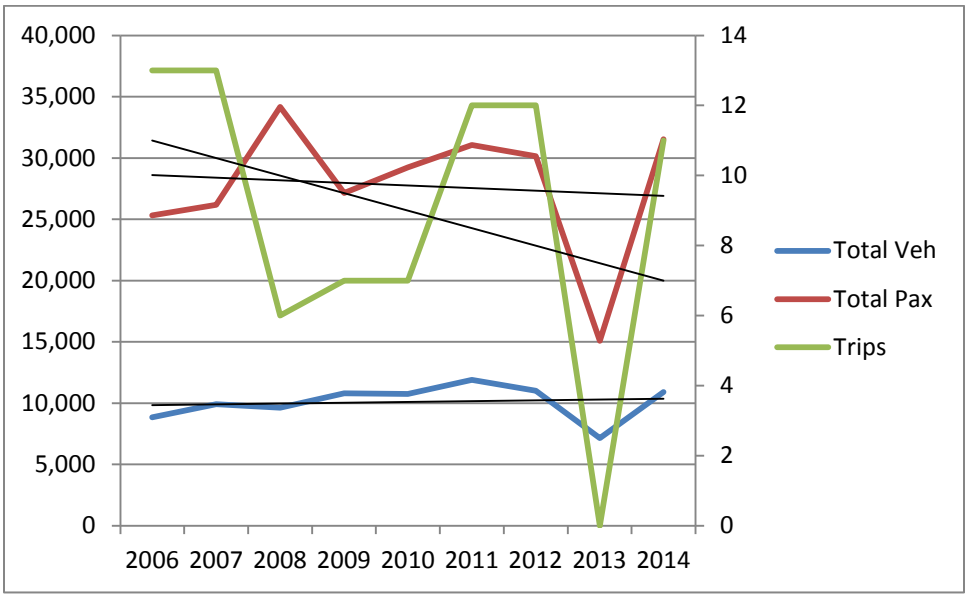
v) Final Design Completion — December 2015

Concept drawing

General information of the replacement vessel.

Mission Requirements	*Tustumena*	*Kennicott*	*Tustumena Replacement Vessel*	Notes
Overall Vessel				
Length	296'	382'	330'	
Beam	59'	85'	70'	72' over the guards
Draft	14'5"	17'6"	15'-10" as built and 16'-6" keel draft at end of service life	Includes an allowance for service life weight growth.
Air Draft	77'	92'-3"	77'	Set a maximum design criteria of 90'
Speed (cruising speed in weather)	13.8 kts	16.75 kts	15-16 kts at Sea State 4, 85% MCR	Increasing speed to better maintain sailing schedule and/or increase frequency of service.
Range	3300 nm	4500 nm	4000 nm	
Deadweight Capability	900 LT	1219 LT	1595 LT	Based on estimated lightship
Displacement	3067 LT	7503 LT	5595 LT	

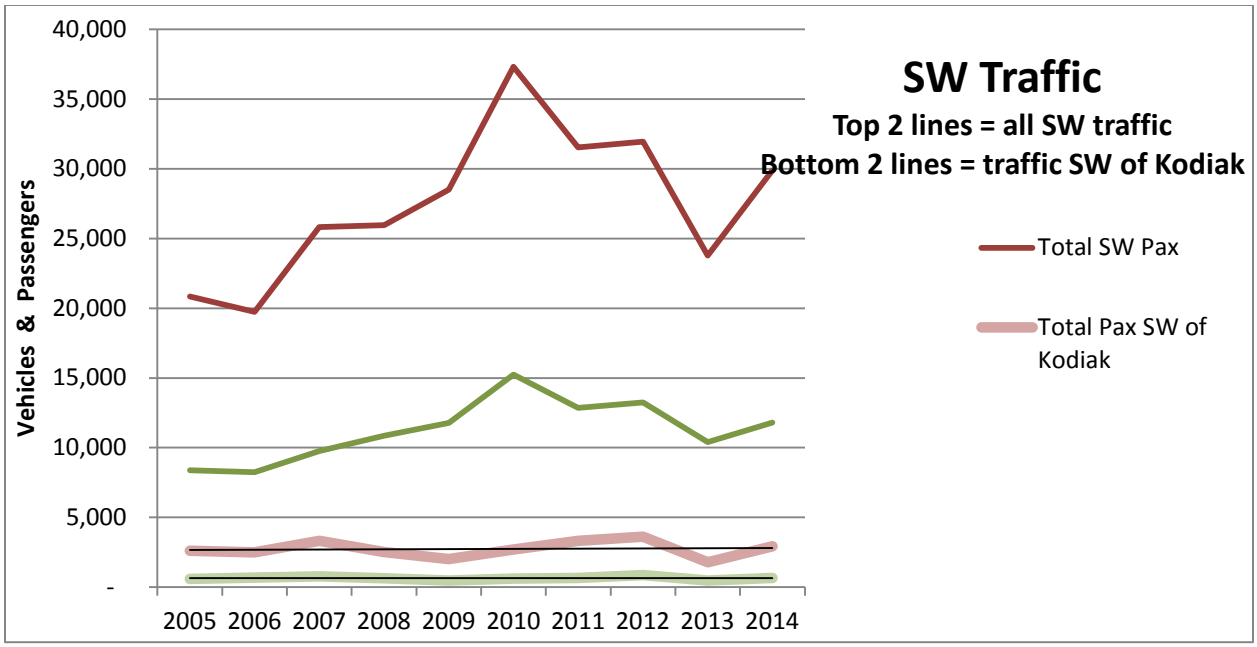
2006-2014 Traffic:

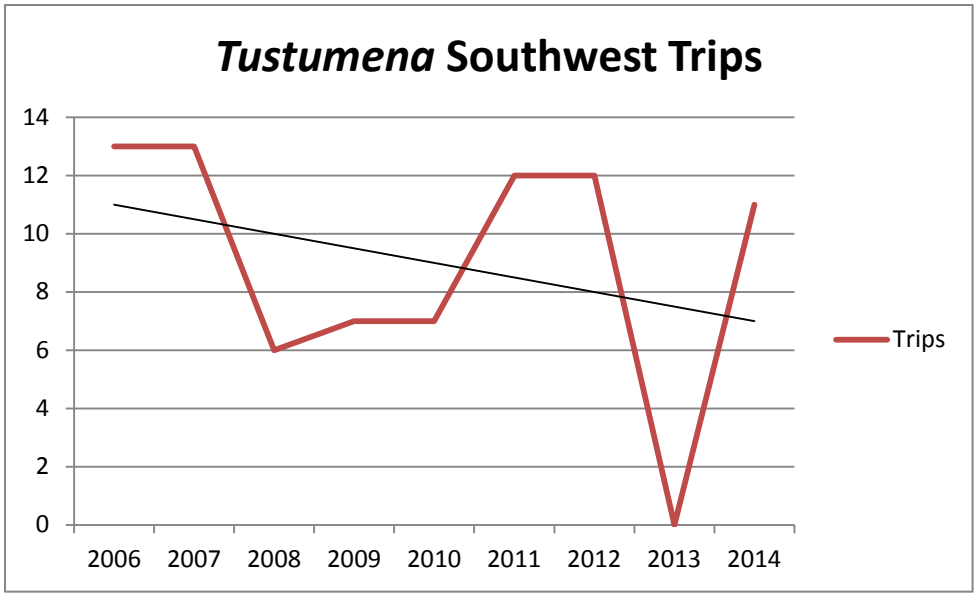


Note: Due to construction delays for the Tustumena's federal project in 2012-2013 only three trips were made to Dutch Harbor and the Southwest in 2013. The 2013 information was significantly lower and doesn't provide an accurate depiction.

	SW less PWS (From Open Reports)		Kodiak and Northeast of Kodiak		SW of Kodiak				
Year	Total SW Pax	Total SW Veh	Pax	Veh	Total Pax SW of Kodiak	Total Veh SW of Kodiak	Homer - Dutch Trips	Percent SW of Kodiak Pax	Veh
2005	20,844	8,373	18,247	7,790	2,597	583	9	12%	7%
2006	19,737	8,242	17,240	7,565	2,497	677	9	13%	8%
2007	25,829	9,766	22,510	8,986	3,319	780	14	13%	8%
2008	25,967	10,869	23,445	10,245	2,522	624	10	10%	6%
2009	28,518	11,773	26,504	11,291	2,014	482	8	7%	4%
2010	37,312	15,234	34,605	14,615	2,707	619	12	7%	4%
2011	31,533	12,846	28,210	12,179	3,323	667	11	11%	5%
2012	31,950	13,243	28,340	12,391	3,610	852	13	11%	6%
2013*	23,780	10,407	21,993	9,931	1,787	476	7	8%	5%
2014	29,894	11,799	26,973	11,135	2,921	664	11	10%	6%

**Tustumena* out of service for most of 2013


SW Traffic
Top 2 lines = all SW traffic
Bottom 2 lines = traffic SW of Kodiak
Vehicles & Passengers
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Total SW Pax
Total Pax SW of Kodiak


Tustumena Southwest Trips
14
12
10
8
6
4
2
0
2006 2007 2008 2009 2010 2011 2012 2013 2014
Trips

Appendices

A. Southwest Docking Facilities

B. 2014 Southwest Traffic

C. U.S. Army LCU-2000 information

D. Time / Distance / Speed

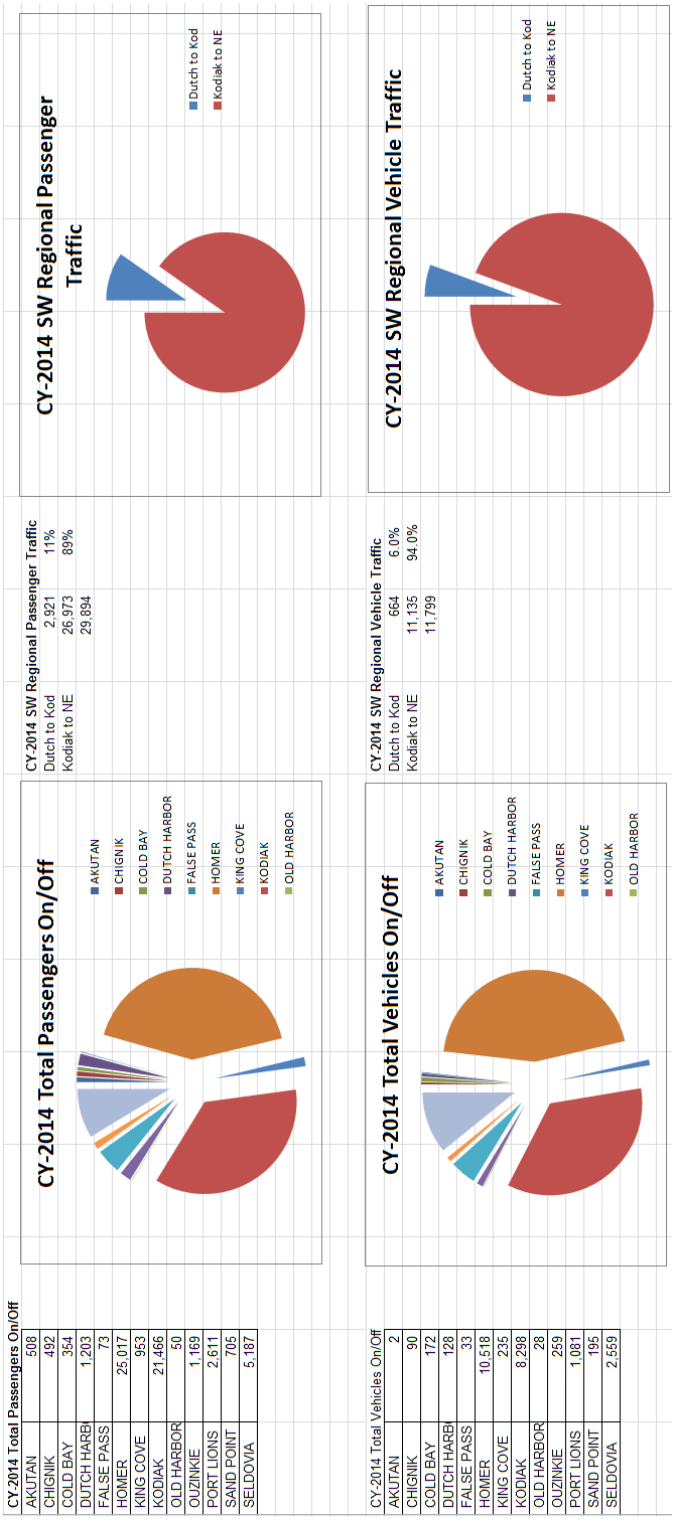
Appendix A. Southwest Docking Facilities

The following list describes the docking facilities in southwest Alaska.

Community	Facility	Built	Owner	Condition	Comments
Adak	Dock	~1943	City of Adak	Fair	
Akutan	Dock	1982	Aleutians East Borough	Fair	Refurbishment project underway 2015
Atka	Dock	2012	Aleutians West Census Area		
Chignik	Dock	~1960	Trident Seafoods	Poor	Discontinue use with completion of new City Dock.
Chignik	Dock (under construction)	-	Lake & Peninsula Borough	New	New dock construction anticipated to start 2015.
Cold Bay	Dock	1978	Aleutians East Borough	Good	Refurbishment project underway 2015. However, plans to replace portions or entire dock will be needed within 10+ years.
False Pass	Dock	1993	Village of False Pass	Good	
King Cove	Dock	1993	Aleutians East Borough	Fair	
Kodiak City Dock (Pier 1)	Dock	~1960	City of Kodiak	Fair	Replacement underway but will not be completed until 2016
Kodiak Pier 2	Dock	1988	City of Kodiak	Good	

Nikolski	None	-	-	-	
Old Harbor	Dock	2012	City of Old Harbor	New	
Ouzinkie	Dock	2012	City of Ouzinkie	New	
Port Lions	Dock	2014	City of Port Lions	New	
Sand Point	Dock	1983	City of Sand Point	Fair	New dock in planning – estimate construction in 2017.
Unalaska (Dutch Harbor)	Dock	~1960	City of Unalaska	Good	City has $7.5M earmark for construction (2005 SAFETEA-LU).

Appendix B. 2014 Southwest Traffic



CY-2014 Total Passengers On/Off	
AKUTAN	508
CHIGNIK	492
COLD BAY	354
DUTCH HARB	1,203
FALSE PASS	73
HOMER	25,017
KING COVE	953
KODIAK	21,466
OLD HARBOR	50
OUZINKIE	1,169
PORT LIONS	2,611
SAND POINT	705
SELDOVIA	5,187

CY-2014 Total Vehicles On/Off	
AKUTAN	2
CHIGNIK	90
COLD BAY	172
DUTCH HARB	128
FALSE PASS	33
HOMER	10,518
KING COVE	235
KODIAK	8,298
OLD HARBOR	28
OUZINKIE	259
PORT LIONS	1,081
SAND POINT	195
SELDOVIA	2,559

CY-2014 SW Regional Passenger Traffic		
Dutch to Kod	2,921	11%
Kodiak to NE	26,973	89%
	29,894	

CY-2014 SW Regional Vehicle Traffic		
Dutch to Kod	664	6.0%
Kodiak to NE	11,135	94.0%
	11,799	

From calendar year 2014 AMHS traffic data

Appendix C. U.S. Army LCU-2000 landing craft

1) A landing craft similar to the U.S. Army's LCU-2000 Class U.S. Army landing craft (35 in service) would have great seasonal potential for Bristol Bay. Regrettably, none are currently available as surplus. Contacts with the Alaska Congressional delegation might make one available for a summer demonstration project.

   - 24-hour operation, built to USCG standards

   - Ocean service

   - Fairly small crew

   - Good capacity

2) The *Runnymede* class large landing craft (Lead vessel of the LCU 2000 class) are operated by the United States Army (USA). They transport rolling and tracked vehicles, containers, and outsized and general cargo from ships offshore to shore, as well as to areas that cannot be reached by oceangoing vessels (coastal, harbor, and inter-coastal waterways). They can be self-deployed or transported aboard a float-on/float-off vessel. They are classed for full ocean service and one-man engine room operations and built to U.S. Coast Guard standards. The vessels can sustain a crew of 2 warrant officers and 11 enlisted personnel for up to 18 days, and 10,000 miles. This class is also equipped with an aft anchor to assist in retracting from the beach.

3) Using estimated costs for a USA LCU-2000 Class landing craft in Bristol Bay a 22-week summer season, 2-week annual overhaul, and 28-week lay-up would have annual costs of approximately $4.2M (~$11,500/day).

4) Estimated capacity: 150 passengers, 15 20' vehicles.

5) LCU crewing total – 13

Station	Watches	Duration	Total crew needed
Master	On duty		1
Bridge watch (helm and lookout)	2	6-on, 6-off	4
Engine room	1	6-on, 6-off	2
Galley/steward	1	6-on, 6-off	2
Deck	2	6-on, 6-off	4

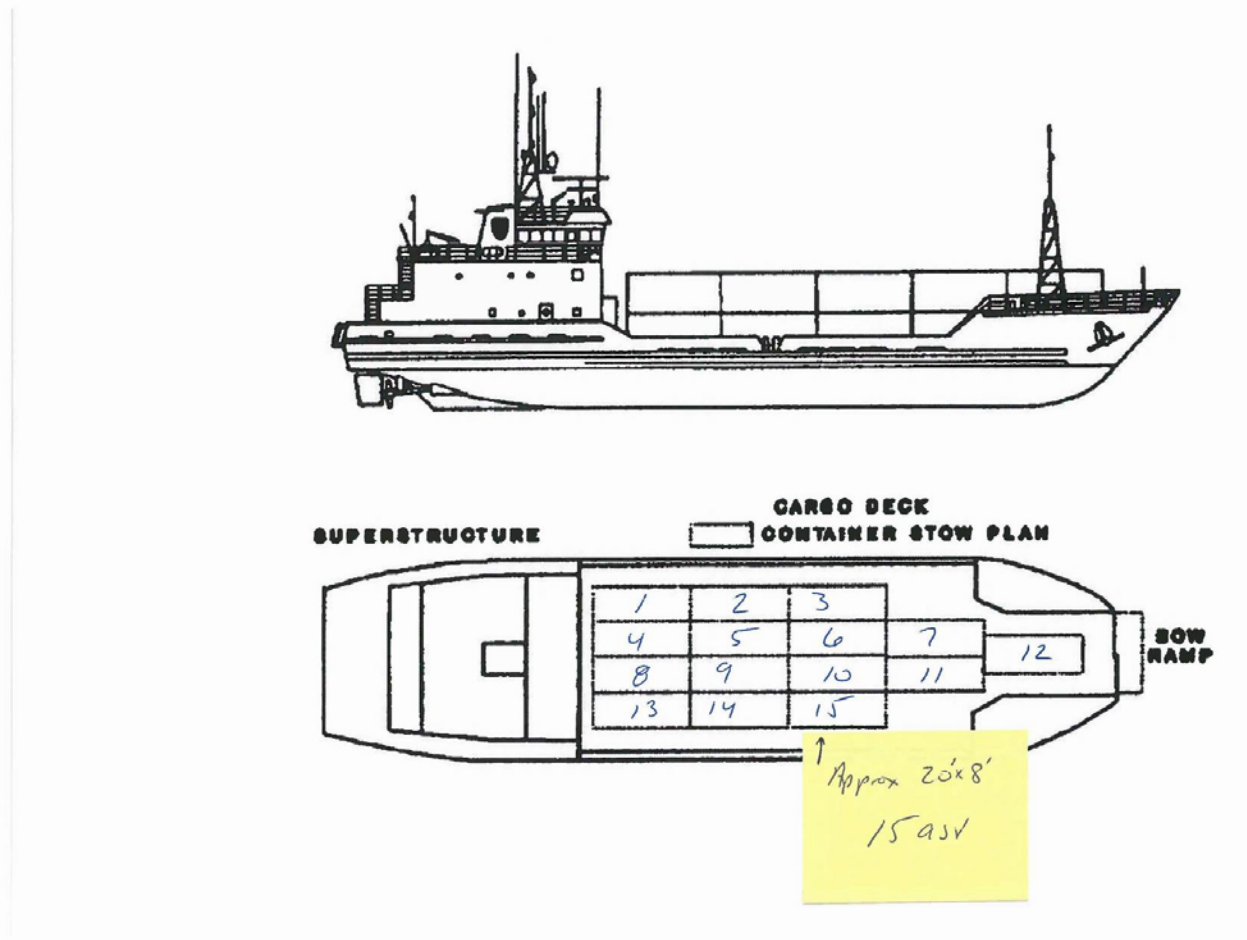
6) The LCU crew quarters would need modification. The passenger area would be created on the first deck (01) using airline style assigned seating and a small, simple fast-food type galley with very limited selection or vending machines.

7) The only information available for AMHS SW operations comes from *Tustumena* sailing long distances from port-to-port dropping off and picking up passenger and vehicles in remote, low population areas. Bristol Bay has long distances, small populations that swell in the summer, and no real marine transportation system (one would have to be created). Looking at *Tustumena*'s link volume percentages in the 2014 Annual Traffic Volume Report she averages 33.1% passenger capacity and 59.1% vehicle capacity. That averages to 2.6 passengers for each vehicle carried. A LCU-2000 carrying 15 vehicles might carry 40 passengers. At the start of a fishing season, the ferry might run 100% full in one direction, but nearly empty in the other direction (50% combined). At the end of the season the same may be true. The SWTP update Phase 1 Report had one public comment that said Naknek swelled to 6-7,000 people, up from 544, in the summer (Appendix E, page 45, Ted Meyer, Bristol Bay). Airfares from Anchorage to King Salmon and Anchorage to Dillingham are roughly the same (~$535, but "deals" may sometimes be found). If flying to Dillingham an additional transit by boat to Naknek is required costing additional time and money (single passenger cost based on other AMHS fares for similar length voyages = $37-$89, ~ 8 hour voyage).

8) Looking at optimistic daily numbers, a LCU costing $4.2M per year would cost ~$11,500/day. Using similar length route miles and fares for a Naknek to Dillingham route, if passenger fares were $63 (average of $37 and $89) per adult and the capacity was 150 passengers (but daily average 50% full which is above *Tustumena*'s 38.4% average), the ferry might have revenues for passengers of $9,450 per day. Fifteen 19' vehicle fares might be $107 (average of $91-$123) per vehicle and have revenues of $3,210 per day if 100% full both ways (well above *Tustumena*'s 68.7% average). Daily *profit* might be $1,100. The Naknek-Dillingham run would be the greatest revenue generator; all other Bristol Bay routes would lose more per day.

U.S. Army LCU-2000 Class overview	
Name:	LCU 2000 class
Operators:	United States Army
General characteristics	
Displacement:	575 long tons (584 t) light 1,087 long tons (1,104 t) full load
Length:	174 ft (53 m)

Beam:	42 ft (13 m)
Draft:	9 ft (2.7 m) light 8 ft (2.4 m) loaded 4 ft (1.2 m) beaching draft at the bow
Range:	10,000 nmi (19,000 km) at 12 kn (22 km/h) light 6,500 nmi (12,000 km) at 10 kn (19 km/h) loaded
Capacity:	350 short tons (318 t) (15 C-141 loads) 3 × M1 main battle tanks *or* 12 × (24 double-stacked) 20-foot (6 m) ISO containers **Approximately 15 20-ft Alaska Standard Vehicles (ASV)**
Complement:	**13**


CARGO DECK
SUPERSTRUCTURE
CONTAINER STOW PLAN
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
BOW RAMP
Approx 20'x8'
15 asv


US ARMY
LCU 2017

Appendix D. Time / Distance / Speed

	Population	Kodiak to:	Speed	Time	Round Trip +1	Exposure	Facilities
Karluk	27	90	12	7.5	16.0	Exposed	None
Larsen Bay	90	87	12	7.3	15.5	Protected	Cannery dock
Ouzinkie	193	15	12	1.3	3.5	Protected	Dock
Old Harbor	192	94	12	7.8	16.7	Semi-protected	Dock
Akhiok	44	127	12	10.6	22.2	Protected	Cannery

	Population	Kodiak to:	Speed	Time	Round Trip +1	Exposure	Facilities
Karluk	27	90	14	6.4	13.9	Exposed	None
Larsen Bay	90	87	14	6.2	13.4	Protected	Cannery dock
Ouzinkie	193	15	14	1.1	3.1	Protected	Dock
Old Harbor	192	94	14	6.7	14.4	Semi-protected	Dock
Akhiok	44	127	14	9.1	19.1	Protected	Cannery dock

	2010 Population	Facilities
Dutch Harbor	4,376	AMHS scheduled route
Atka	68	Dock
Adak	283	Protected. Old U.S. Navy facility/dock
Port Moller		Peter Pan Seafoods May-Sep
Port Heiden	102	Beach, 3 nm through shallow water
Egegik	109	Beach, cannery dock, very shoal water approach, 13 nm to sea buoy
Naknek	544	Beach, cannery dock, very shoal water approach, 3.5 nm to deep water
Dillingham	2,329	Dock, long river channel, private aids to navigation
Albatross Anchorage	0	None, need dock and 11-mile road to Herendeen Bay
St Paul	479	Very exposed approach. Very small harbor.
St George	102	Very exposed approach. Very small harbor.
Ugashik/Pilot Point	80	Beach, very shallow, no charts, 11 nm to sea buoy
Nelson Lagoon	52	Small dock, beach, very shallow, 3.5 nm to open water

Bristol Bay to mid-Aleutians

	Dutch	Atka	Adak	Port Moller	Port Heiden	Egegik	Naknek	Dillingham	St Paul	Ugashik/PP	Nelson Lagoon
Dutch Harbor											
Atka	308										
Adak	407	132									
Port Moller											
Port Heiden				102							
Egegik											
Naknek	432					53					
Dillingham	430			211	137	74	84			104	220
St Paul	238										
Ugashik/Pilot Point					67	62					
Nelson Lagoon	242			24							
Herendeen Bay				24				238			

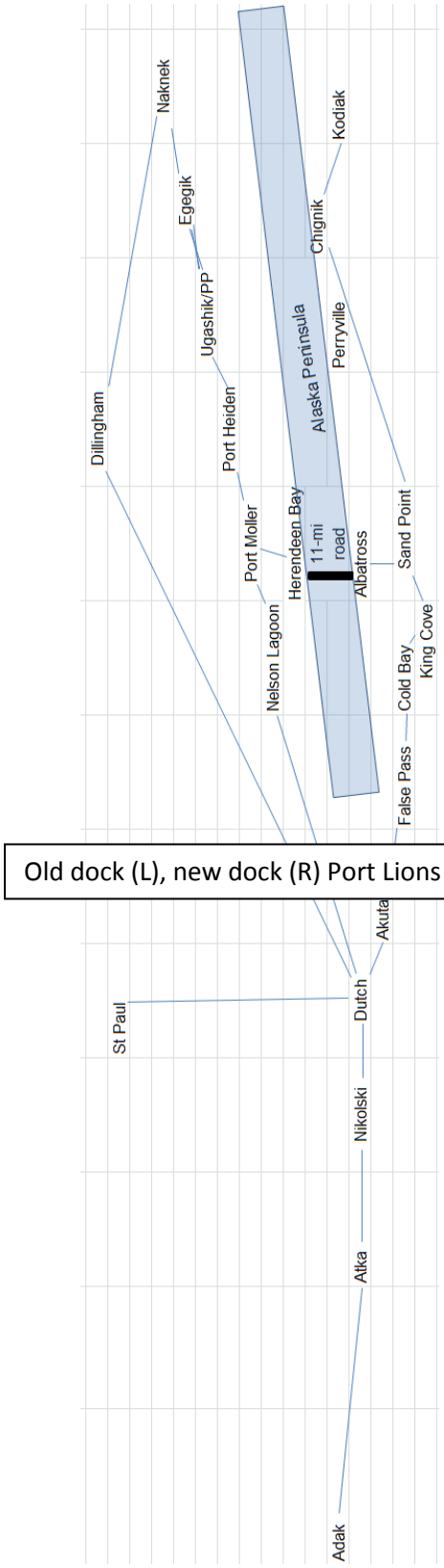
Herendeen Bay to Albatross - New 11 mi road following foot path
Sand Point to Albatross = 16 nm

	Dutch	Atka	Adak	Port Moller	Port Heiden	Egegik	Naknek
14-knot conventional ferry							
Dutch Harbor							
Atka	22.0						
Adak	29.1	9.4					
11.5-knot landing craft (optimistic)		**11.5**	← Change speed				
Port Moller							
Port Heiden				8.9			
Egegik							
Naknek	37.6					4.6	
Dillingham	37.4			18.3	11.9	6.4	7.3
St Paul	20.7						
Ugashik/Pilot Point					5.8	5.4	
Nelson Lagoon	21.0			2.1			
Herendeen Bay				2.1			

Total distance ~ 636 nm round trip. 12-knots ~56 hours. 8 port calls 1-2 hours. Round trip in 3.5 days. Ship needs crew quarters. Ship start/stop Herendeen Bay, meet up with *Tustumena* schedule. **Use surplus U.S. Army LCU-2000 Class.**

Adak and Atka would be ~3-day run to the west of Dutch Harbor for *Tustumena*. Trip would have to arrive in Albatross Anchorage ferry terminal to coordinate with landing craft arrival into Herendeen Bay Cannery Point ferry terminal.

	Dillingham	St Paul	Ugashik/PP	Nelson Lagoon
Dillingham	0.0	0.0	9.0	19.1
St Paul				
Ugashik/Pilot Point				
Nelson Lagoon				
Herendeen Bay	20.7			



Old dock (L), new dock (R) Port Lions 2014.

APPENDIX M

Williamsport Pile Bay Road

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SOUTHWEST ALASKA
TRANSPORTATION PLAN UPDATE
IRIS PROJECT NUMBER Z804080000

APPENDIX M:

WILLIAMSPORT PILE BAY CORRIDOR

CONSOLIDATION OF DOCUMENTED INFORMATION

Prepared for:

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Prepared by:

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Anchorage, Alaska 99503

January 2016

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FIGURES

TABLES

LIST OF ACRONYMS

ABLS.....Alaska Barge Landing System
DOT&PF.....Alaska Department of Transportation and Public Facilities
IRTCA.....Iliamna Regional Transportation Corridor Analysis
ITS.....Intelligent Transportation Systems
MLLW.....mean lower low water
PCM.....DOT&PF Highway Preconstruction Manual
SWATP.....Southwest Alaska Transportation Plan
USACE.....United States Army Corps of Engineers
USGS.....United States Geological Survey
WPB.....Williamsport Pile Bay

1.0 INTRODUCTION

This appendix to the Southwest Alaska Transportation Plan (SWATP) documents plans and records that pertain to current improvement plans for the multi-modal Williamsport Pile Bay Road (WPB) Corridor. Proposed improvements focus on upgrading the single-lane, 14-mile long gravel road to a two-lane, all-season road between Pile Bay, on the east shore of Lake Iliamna, to Williamsport, on the west coast of the Cook Inlet (Figure 1).

1.1 Project Location

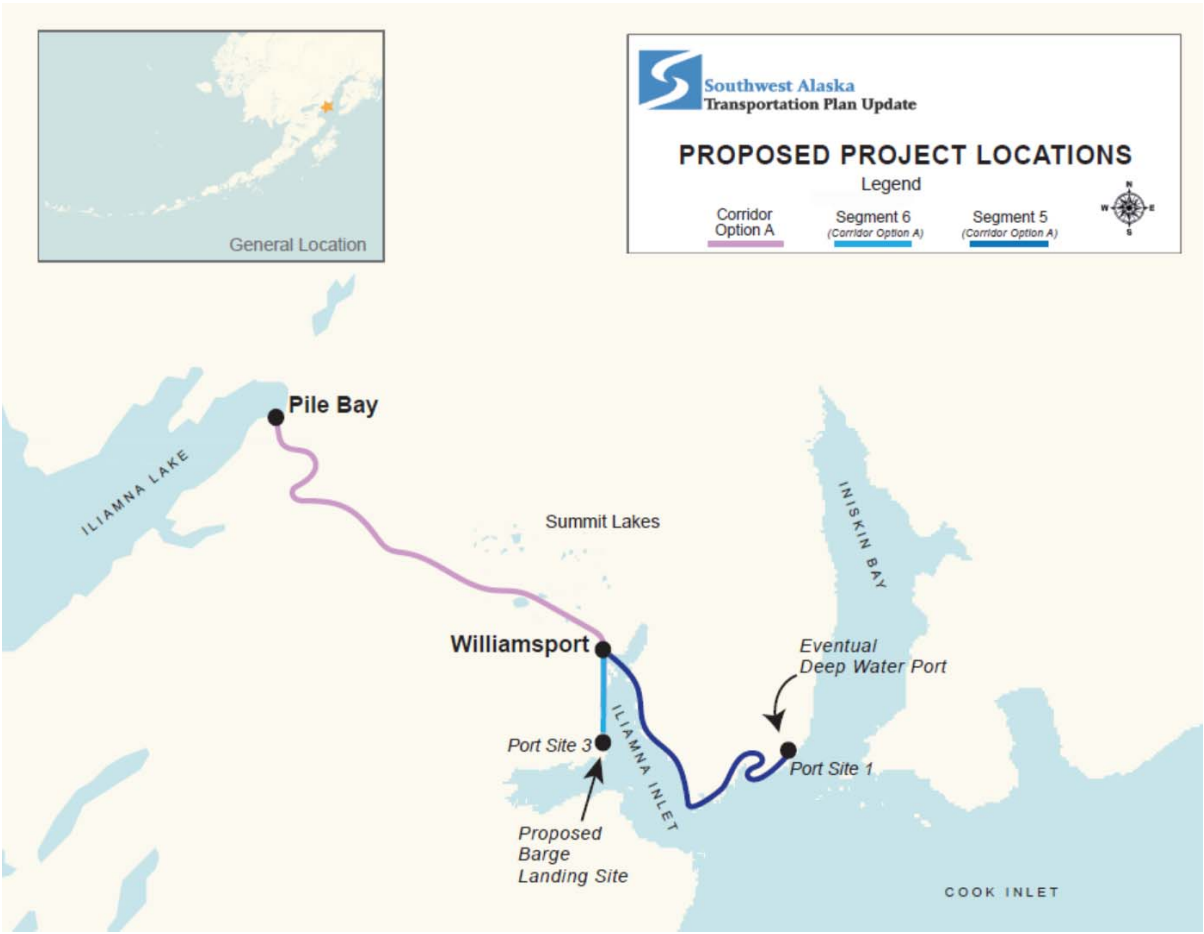

Figure 1: Project Map and Location

Corridor Option A follows the route of the existing WPB from Pile Bay to Williamsport. Segment 6 would be new construction, accessing a proposed barge landing site at Port Site 3. Segment 5 is also new construction and provides access to an eventual deep water port at Port Site 1.

Pile Bay improvements: Pile Bay would be developed as a hub dock facility for distribution of provisions to Lake Iliamna communities.

Road improvements: The proposed alignment would generally follow that of the existing road except for a section in the Summit Lakes area. The road currently bisects private property at the Williamsport end, and new routing to avoid the private property would be considered. At Williamsport, new road can be extended in two directions:

- A three-mile extension south to Diamond Point (light blue line in Figure 1) would provide better barge access in a deeper part of Iliamna Bay.
- An eventual extension to the southeast (dark blue line in Figure 1) would provide access to an area appropriate for deep water port development.

Williamsport improvements: The project includes analysis and construction of a landing craft landing and boat pull-out at Williamsport in Iliamna Bay. Eventual development could include port facilities at the ends of the two proposed road extensions described above:

- Initial studies favor a barge dock at Diamond Point. This would improve barge access for provisions currently arriving via Williamsport. It would also improve beachhead landing support for construction personnel and equipment that would be used in the eventual development of a deep water port at Port Site 1.
- Development of a deep water port at Port Site 1 could be developed when economically feasible.

This project is part of a two-project plan to improve a multi-modal surface transportation corridor between Cook Inlet and Bristol Bay (Figure 2). While WPB provides access from Cook Inlet to Lake Iliamna (green line in Figure 2), the Kaskanak Road Project would establish access from Lake Iliamna to Bristol Bay via the Kvichak River (lavender line in Figure 2). The length of the eventual corridor will be approximately 176 miles: The WPB Corridor is 14

miles, a journey across Lake Iliamna is approximately 75 miles, and the Kaskanak Road project from Igiugig to Bristol Bay is approximately 78 miles.

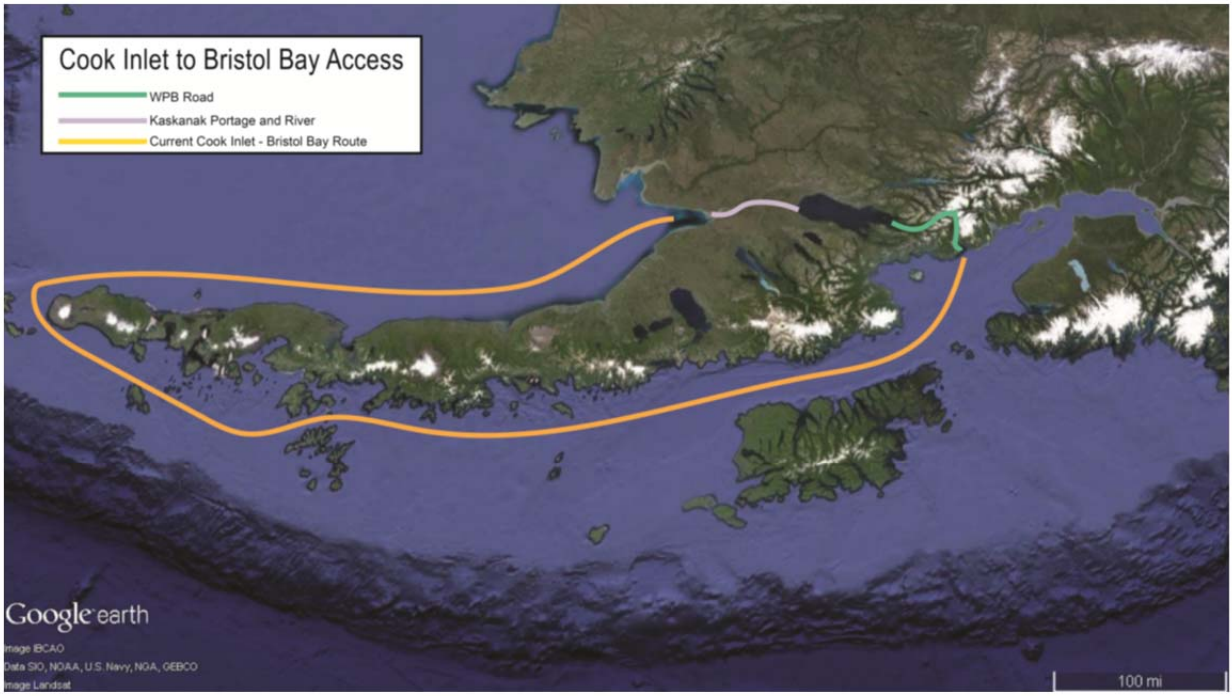

Figure 2: Cook Inlet to Bristol Bay Corridor

The proposed multi-modal improvements between Cook Inlet and Bristol Bay would shorten the approximately 1,000-mile trip around the Alaska Peninsula to 170 miles.

Currently, the only access that Iliamna fishermen have to Bristol Bay is an approximately 1,000 mile journey via WPB, Cook Inlet, around the Alaska Peninsula, through False Pass, and finally to Bristol Bay (orange line in Figure 2). Improving WPB access is becoming more important as the braided shallows of the Kvichak River continue to become shallower, limiting access to vessels with drafts less than 2 feet.

1.2 Purpose and Need

This project improves connectivity and efficiency along a well-established corridor. It

- reduces the tide-dependency of freight delivery to Williamsport,
- improves intermodal connection between sea and land,
- improves safety and efficiency of vehicle traffic by improving road condition and geometry, and
- provides basic infrastructure required for future upgrades.

The route immediately benefits the residents of the Iliamna Lake and Lake and Peninsula Borough, a population of about 1,631. As an element of a Bristol Bay corridor, the project will serve 16,177 year-round residents.

Improvement of the route is estimated to net $3 million a year in freight savings; creating a more robust private barging industry while reducing costs for residents.

> *"Planning studies for Southwest Alaska have identified up to $3 million in annual freight savings from upgrading this road to better serve general freight and fuel delivery. This project will also provide Iliamna Lake communities with access and connectivity to Homer; allow gillnetters to transport vessels; provide an alternative to low water problems on the Kvichak River..."*
>
> *Draft MOA with the Denali Commission*

1.3 Project History

There is evidence that early Alaska Natives used this route for trading between the west side of Cook Inlet to Iliamna Lake. Athabascan, Yupik, and Aleut used the trail for hundreds of years, followed later by Russian traders and American gold miners (Klouda, 2010). The road currently in use was constructed between 1917 and 1937 (Alaska Department of Transportation and Public Facilities [DOT&PF], 2007, p. 2-1). Williamsport is named after Carl Williams, who purchased the trading post in 1936 and established a freight business (Klouda, 2010).

The possible use of WPB in Pebble Mine development is a significant element in the recent history of the road. While Pebble Mine investigations have been suspended, interest in the road continues.

During Phase I of the SWATP Update, Lake and Peninsula Borough Community Development Coordinator Jordan Keeler listed Williamsport as the first priority for his borough. He said they needed upgraded roads and landings and better drainage on roads. Pebble exploration had increased the need for heavy cargo and fuel; and bridges along the route are at the end of their useful life.

> *"We completely support the upgrade of the Williamsport Pile Bay road and the concept that this very important corridor is critical to getting cheaper goods and services to the region."*
>
> *Jeff Currier, Lake and Peninsula Borough Manager, in comments for the 2004 Southwest Alaska Transportation Plan*

Mary Jane Sutliff, the retired DOT&PF Area Planner for Southwest Alaska, also cited the WPB as a priority. It connects areas not otherwise connected. While there are concerns that the road would open the door for Pebble Mine development, Sutliff stated that DOT&PF has nothing to do with the mine as it is not included in their plans in the Statewide Transportation Improvement Program, a big signal that Pebble Mine access was not a DOT&PF concern.

Representative Alan Austerman represented District 36 in the Alaska State Legislature House of Representatives through 2014. This district includes significant areas of Bristol Bay, and has traditionally supported upgrades and road maintenance for WPB.

WPB has had opposition, some due to concerns about use of the road to support Pebble Mine. A fuel spill in 2009 was said to prove that Pebble development could not happen without environmental consequence. This is despite the fact that the fuel spill was due to

equipment failure (the tanker was punctured by its own support structures) and the fuel was destined for the Iliamna Development Corporation (Klouda, 2010).

1.3.1 Current conditions

The current facilities can be broken into three elements: Pile Bay, the WPB, and Williamsport.

Pile Bay: Regional heavy freight is delivered to Pile Bay via the WPB then barged to communities on the lake. Communities served include Iliamna, Newhalen, Igiugug, Kokhanok, Pedro Bay, and Pile Bay Village. The Alaska Barge Landing System (ABLS) Assessment and Design for Various Locations, Statewide, Alaska, Phase 2 (United States Army Corps of Engineers [USACE], 2010, p. 104) cites Pile Bay as a possible location to develop a hub dock facility. Vessels carrying bulk fuel up the Kvichak from Bristol Bay are forced to lighter across the shallow areas and then to communities along the lake. These efforts are estimated to take 3 boat crews more than a week (USACE, 2010, p. 105).

The Pile Bay port is not formally developed and is essentially a road that ends in the lake (Figure 3).

Figure 3: Pile Bay

The Williamsport Pile Bay Road ends in Lake Iliamna, with no formal watercraft landing facilities developed. Photo courtesy of Rebecca Rauf, Planner, DOT&PF.

Williamsport Pile Bay Road: WPB (CDS # 074000) is a single lane, 14.19 mile gravel road functionally classified as a Major Collector (DOT&PF, 2015a).

Williamsport: The Polar Bear is a large landing craft currently providing freight service to Williamsport eight times a month and only when the tide is above 15 feet (Cape International, Inc., 2012, p. 41). The Polar Bear has a draft of five feet and must wait for a tide on the way in and on the way out. The combined time of waiting and the cost of trucking the fuel to Pile Bay makes flying fuel a more cost effective option (USACE, 2010, p. 105).

1.3.2 Planning

Many recent studies of WPB investigated the possibility of using the route to provide a deep water port for ore mined from the Pebble deposit, west of Iliamna.

The Iliamna Regional Transportation Corridor Analysis (IRTCA) (DOT&PF, 2007) is the most recent examination of the connection between Williamsport and Pile Bay. The purpose of the study was to, *"…identify a feasible transportation corridor that that can accommodate a road route that terminates at a deep-water port, services the needs of the communities, and can aid in the development and the economic expansion of the region."* (DOT&PF, 2007, p. 8-1) The Executive Summary adds that the report will, *"…identify transportation corridors to connect local communities and mineralized areas to a deep water dock."* (DOT&PF, 2007, p. 1-1) The preferred alternative included the existing WPB beginning approximately three miles outside of Pedro Bay and extending to Williamsport, an improved barge landing at Diamond Point, and a deep water port to the southeast, just inside Iniskin Bay (DOT&PF, 2007, p. 1-12 and 1-9). While this was predominantly a desktop study, it provides the most complete design analysis of the WPB corridor available at this time.

The Pebble Partnership also included the WPB corridor in a transportation analysis for their Environmental Baseline Document (Kevin Waring & Associates, Inc., 2010). Pebble was working on the development of a large mine west of Iliamna until the project was shelved

due to opposition and permitting challenges. The study provided documentation of transportation options in the area but did not provide a preferred alternative.

The ABLS was developed for the U.S. Army Engineer District in November of 2010 and considers barge landings statewide. While the study does not specifically propose improvements to Pile Bay or Williamsport, it does recognize the possibility of developing a hub dock facility at Pile Bay (USACE, 2010, p. 104).

A few other plans provide general contextual information.

- The Cook Inlet Vessel Traffic Study (Cape International, Inc., 2012) summarizes Williamsport constraints and current uses.
- The USACE provided an Alaska Baseline Erosion Assessment (ABEA) for the road between Pile Bay and Williamsport (USACE, 2007).
- Information about natural disasters is in the Kenai Peninsula is found in the Borough All Hazards Mitigation Plan (Kenai Peninsula Borough, 2014).

1.3.3 Recent upgrades

DOT&PF has programmed $373,841 to begin the environmental process to replace the modular steel bridge spanning the Iliamna River with a permanent structure (DOT&PF, 2015c). This upgrade appears to be the result of a memorandum of agreement (MOA) with the Denali Commission to address immediate needs on the Williamsport to Pile Bay Road. It is currently unclear if the agreement was executed (DOT&PF, 2003).

> *The purpose of this Agreement is to establish the guidelines for completing a project to address the immediate needs on the Williamsport to Pile Bay Road.*
>
> *The Commission shall provide $750,000 to DOT&PF for addressing the immediate needs on the Williamsport to Pile Bay Road, including: (i) the replacement of a deficient bridge on the Iliamna River with a Bailey-type expedient bridge; and (ii) spot widening of rock cuts and curve realignments to improve safety for freight vehicles.*
>
> *DOT&PF shall contribute $83,333 funds to this effort, for design and construction management of the construction activities.*
>
> *Upon completion of the project, DOT&PF shall assume responsibility for sustaining the ongoing operation and maintenance of this segment.*
>
> *The total Commission funding for this Agreement is $750,000 and is intended for use for the scope of work identified in the Agreement document only. In the event there is a balance of funding after the full scope of work is completed, then the Commission (in consultation with DOT&PF) will determine how the excess funds will be allocated. The final decision on how excess funds are used is a Commission decision, and may include withdrawing excess funds for reallocation to other Commission projects. DOT&PF will return any unexpended project funds (based upon pro rata project contributions) to the Commission at the end of the project Period of Agreement.*
>
> ***Memorandum of Agreement Between the Alaska Department of Transportation and Public Facilities and the Denali Commission for a Project to Address Immediate Needs on the Williamsport Pile Bay Road, Denali Commission Project No. A02003.01, March 2003***

2.0 DESIGN STANDARDS

IRTCA design criteria considered transportation of concentrate, supplies, and fuel for mineral development. At the time of the report, the design vehicle had not been decided on, but a 360,000 truck trailer combination (AS20-44) was chosen for the interim. This resulted in road criteria of

- 8 percent maximum grade,
- 1,000 foot minimum curve radius, and
- 30 feet top of road width from shoulder to shoulder.

The design vessels for port options for Iliamna and Iniskin Bay are listed in Table 1.

Table 1, Design Vessels: Design vessels used in analysis of port options for Iliamna and Iniskin Bay

Vessel	Tonnage	Length (ft)	Beam (ft)	Draft (typical/max)
Panamax	77,000 DWST	800-950	106	42/45
Handymax	44,000 DWST	630	100	36/38
Barge		400	100	15-20

Source: DOT&PF, 2007, p. 8-1

3.0 DESIGN ALTERNATIVES

The most recent treatment of alternatives for the WPB is the IRTCA. While this analysis looked at a road from the mineralized area approximately 17 miles west of Nondalton to port facilities in Williamsport, a significant section of the route follows the existing WPB. The proposed IRTCA route picks up WPB about three miles outside of Pile Bay.

The purpose of that document was to connect local communities and mineralized areas to a deep water dock, which was identified as a key factor in minimizing shipping costs for local freight and ore concentrate (DOT&PF, 2007, p. 1-1).

Design alternatives can be considered for three general areas: Pile Bay, the WPB, and Williamsport (Figure 4).

Pile Bay: As noted, the road proposed in the IRTCA bypassed Pile Bay. While the ABLS noted Pile Bay as a location for a dock hub, it did not analyze or describe facilities needed.

WBP Road: Two alternatives for transportation between the area of Pile Bay and Cook Inlet were considered. The options and segments outlined below use the numbering system from the IRTCA for consistency when reviewing documents.

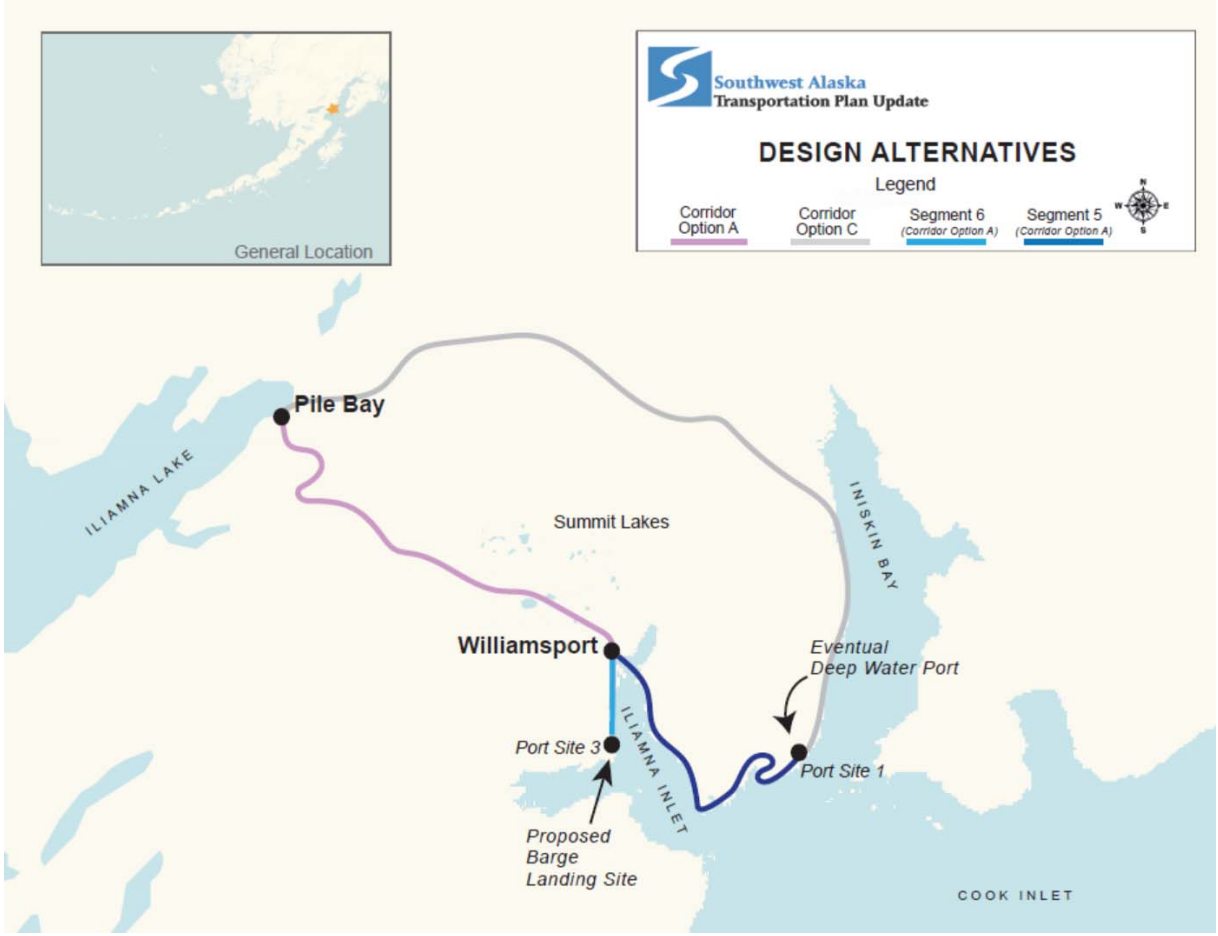

Figure 4: Design Alternatives

Corridor Option C was considered as an alternative but would require new construction across previously undisturbed areas.

Corridor Option A picks up WPB where it crosses the Iliamna River, about 2.75 road miles from Pile Bay. From there it generally follows the routing of the WPB except for a section between Chinkelyes Creek and Williams Creek (DOT&PF, 2007, p. 1-2), where the proposed route diverges south from the road. Option A includes two extensions to the existing road. One is a three mile extension to the south to a better barge landing site (Segment 6) and one

an extension approximately 11 miles to the southeast to a deep water port site at Iniskin Bay (Segments 5A and B).

Corridor Option C circumvents the existing WPB to the north, following a route along the Iliamna River, in the valley north of Sugarloaf Mountain, and terminating at Iniskin Bay (DOT&PF, 2007, p. 1-3). This alternative appears to have the best road grades and lowest construction costs but crosses previously undisturbed areas (DOT&PF, 2007, p. 1-10). Note that this route would require development of a road between Pile Bay and where the road alternative begins, in the saddle between the Iliamna and Pile Rivers.

Williamsport/Cook Inlet: The IRTCA considered four different port sites (Figure 5, below).

- Port Site 1 has developable uplands for facilities and requires a short access to relatively deep water (-60+ mean lower low water [MLLW]). However, it has some exposure to weather from the southeast (DOT&PF, 2007, p. 11-2).
- Port Site 2 was considered to address the weather concerns with Port Site 1, but had submerged hazards, limited turning area, and required longer access roads. These concerns eliminated it from further consideration.
- Port Site 3 is well protected from weather and has uplands for development but is relatively shallow (-3+/- MLLW).
- Port Site 4 is deeper (-12+/- MLLW) but has steep uplands, requiring support facilities to be built on pilings.

Port Sites 3 & 4 would require dredging if used by a HandyMax vessel (37 foot draft). All sites would require dredging for a Panamax (46 foot draft) vessel (DOT&PF, 2007, p. 11-2).

Figure 5: Port Locations:

The IRTCA considered four locations for a deep water port.

4.0 PREFERRED ALTERNATIVE

For the IRTCA, the preferred alternative was Corridor Option A with Port Sites 1 and 3. Option A with provisions for HandyMax ships and barges is estimated to cost $336 million. Option C would cost $270 million. The study notes that the construction cost differences

between Option A and Option C are narrow enough that further consideration of each may be warranted.

At this point in the study, the preferred Option A was chosen because (DOT&PF, 2007, p. 1-12 and 8-32):

- using the existing WPB corridor has fewer environmental impacts than constructing a new road.
- developing Port Site 3 would improve barge landing capability in the short term, with multiple road construction headings and direct transfer of barge freight. These improvements are not dependent on development of a deep-water port at Site 1.
- delaying development of Port Site 1 until use of the larger vessels is assured would reduce initial development costs. When Port Site 1 is constructed, provisioning of men and supplies would be through the barge landing at Port Site 3.
- the route:
  - minimizes stream crossings,
  - maximizes the use of low impact construction methods,
  - takes advantage of local material sites,
  - avoids community and private property impacts,
  - uses existing infrastructure,
  - minimizes the need for avalanche hazard reduction, and
  - maintains a grade of less than 8 percent.

5.0 TYPICAL SECTIONS

Eight typical sections were developed for the route (DOT&PF, 2007, p. 8-24).

Typical Section	Prescribed use
Overlay	Where stable soils allow gravel overlays without geotextile, and where the soils dug up would not be an appropriate source of borrow.
Overlay (permafrost)	This section is similar to that above, but uses geotextile.
Cross Slope	For areas where terrain is too steep for an overlay, but the ground can be used as the road base, with minor filling on the downslope side and minor cutting on the upslope side.
Low Rock Cut	Where roads must be slightly benched into bedrock.
Rock Cut High	Where high rock cuts are required, and the road is fully benched into the bedrock.
Borrow Pit	Where the material dug up from the road is suitable for use as a material source.
Low Coastal Fill	Where wave action would require riprap protection, but road base construction does not require as much fill.
High Coastal Fill	Areas where more fill is needed to build the road base, and riprap is required to protect against wave action.

A typical section was also developed for a possible tunnel along the existing WPB near Summit Lakes, bypassing 10 percent grades and avoiding avalanche chutes in the area (DOT&PF, 2007, p. 8-34).

6.0 GEOMETRIC ALIGNMENT

IRTCA authors used aerial photography and United States Geological Survey (USGS) mapping to design the preliminary road layout in the IRTCA with grades of 8 percent or less. Cuts and fills were not balanced.

7.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment control will be studied in more detail as part of developing plans for the project.

8.0 DRAINAGE

In the IRTCA, PND Engineers note that a more significant hydraulic analysis is required to determine the best alternatives for drainage crossings, but they outline four general structures to anticipate (DOT&PF, 2007, p. 6-1 through 6-3).

- Cross-drainage pipe culverts: 24-inch pipe culverts that would be placed at approximately 700' intervals.
- Drainage pipe culverts: These would vary from 36 to 96 inches and used at identified drainages. If the stream hosts anadromous fish, the culvert would include floor baffles to retain bed load and be subject to additional design standards to assure fish passage.
- Single-span bridges: 40- to 100-foot bridges will be considered for drainage crossings that are not adequately addressed by use of drainage pipe culverts. Two such bridges are the Four Mile Creek Bridge (#1253) and the Timberline Creek Bridge (#1321). These proposed bridges are both steel stringer bridges with timber running planks and are 40- and 30-feet long respectively (State of Alaska, 2014; DOT&PF, 2013).
- Multi-span bridges: These structures are anticipated at major river crossings including Iliamna River, Chinkelyes Creek, and for the causeway across Iliamna Bay (Segment 5 in Figure 4) (DOT&PF, 2007, p. 6-1 through 6-3).

9.0 GEOLOGIC CONDITIONS

The WPB traverses u-shaped glacial valleys in the Chigmit Mountains, with much of the route running through rolling terrain. However, there are sections that require road construction on steep cross slopes with shallow bedrock, which may be subject to land and rock slides.

The section of road that would lead to Port Site 3 runs along a steep coastline. To avoid the most challenging areas, the route would have to cross mud flats in some areas (DOT&PF, 2007, p. 4-4).

10.0 ACCESS CONTROL FEATURES

The DOT&PF Highway Preconstruction Manual (PCM) addresses access control in section 1120.2.4 (DOT&PF, 2014a). While rural highways provide desirable access to rural lands, eventual development of the corridor may require restrictions to access. To the degree possible, future restrictions should be considered in design decisions.

11.0 TRAFFIC ANALYSIS

No ADT data was provided by DOT&PF at the time of this report.

12.0 SAFETY IMPROVEMENTS

The Williamsport Pile Bay Road has three documented safety concerns: flooding, avalanches, and landslides. Flooding problems could be addressed with this project, except in floodplain areas. Avalanches will remain a concern, and the road may have to endure seasonal closures or avalanche control procedures. Road design may address concerns with landslides.

12.1 Flooding

The Teddy Swamp floodplain is on the Pile Bay side of the Iliamna River. In 2003, heavy rainfall caused nearly half a million dollars in damage to the road (Kenai Peninsula Borough, 2014, p. 179). At one point, the Iliamna Bridge was under four feet of water. Photographic analysis done by the USACE estimated erosion at Chinkelyes Creek, Williams Creek, 3 mile bridge, 4 mile bridge and 6 mile culvert (USACE, 2007). The photos below are from the Alaska Baseline Erosion Report (Figure 6).

Photo 1: Williamsport Road washed out from 2003 Flooding.

Photo 2: Iliamna Bridge 4 feet underwater, 2003 flooding.

Photo 3: Williamsport Road washed out from 2003 Flooding.

Photo 4: Williamsport Road washed out from 2003 Flooding.

12.2 Avalanches

Steep terrain along the existing road creates known avalanche hazards. Figure 7 was taken flying from Williamsport west and shows avalanches crossing the existing road (DOT&PF, 2007, p. Appendix D). The road currently has seasonal closures.

Photo 3: Starting to Approach Pass – Better view of avalanche chutes.

Figure 7: WPB Avalanches

This screen print is directly from the IRTCA, Appendix D. On the right side of the photo avalanches chutes cross WPB.

The areas of green below show where avalanches are predicted due to steep terrain, illustrating the higher concern at the Williamsport end of the road (Figure 8) (DOT&PF, 2007, Appendix D).

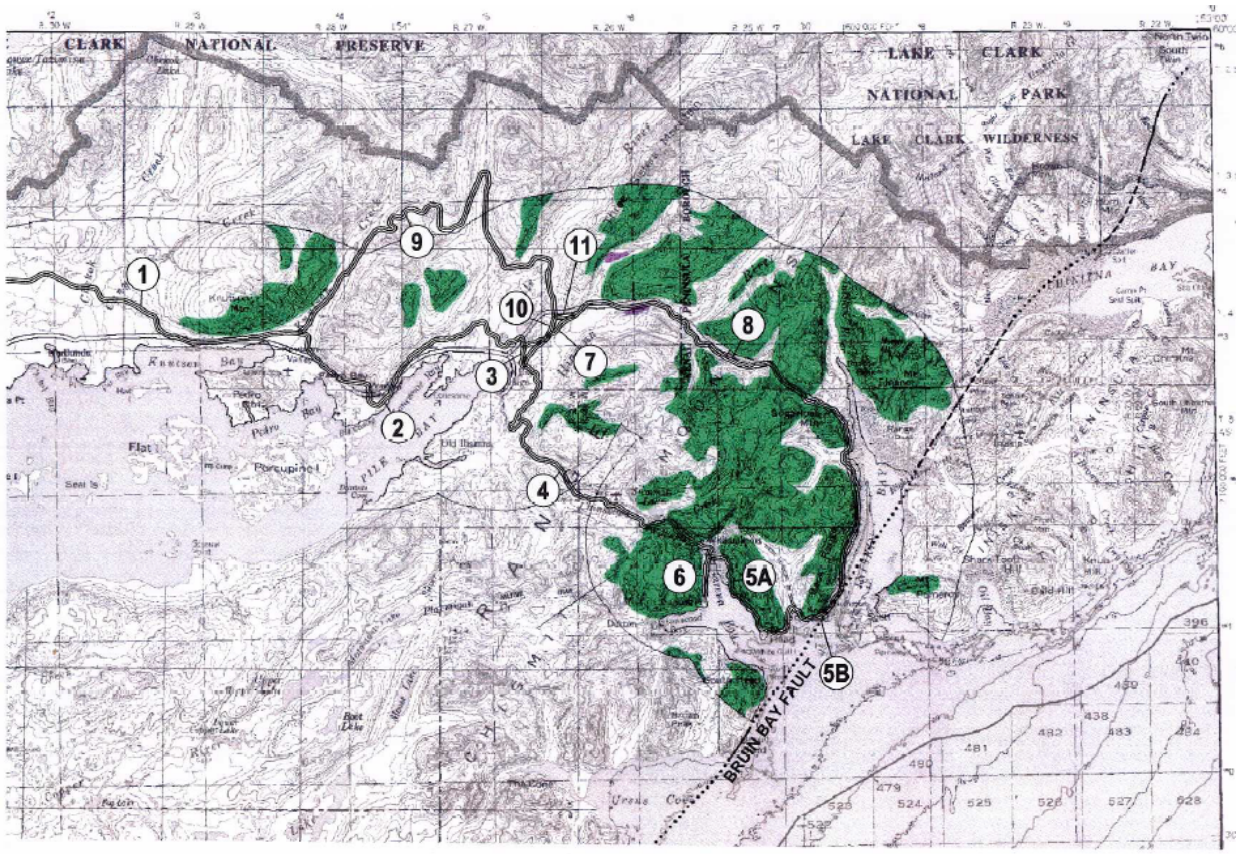

Figure 8: Avalanche-prone Areas

This screen print is directly from the IRTCA, Appendix D. Segments 4, 5 and, 6 correspond to the preferred route outlined in this appendix.

One proposed solution was a 0.4-mile tunnel near Summit Lakes, though it was dropped from consideration due to construction costs, maintenance costs, and tunnel-associated safety concerns (DOT&PF, 2007, p. 8-35 and 8-28).

12.3 Landslides

The section of roadway that traverses steeper areas has experienced landslides (DOT&PF, 2007, p. 4-9).

The existing road is very narrow, and the pull-outs often have boats, equipment, or vehicles parked in them, further exacerbating safety issues.

The IRTCA includes a road section designed for steep areas where high rock cuts are required. Deeper rock cuts would be required in some areas, such as the Pedro Bay area, Chigmit Mountains, and some of the coastal areas (DOT&PF, 2007, p. 8-24).

13.0 RIGHT OF WAY REQUIREMENTS

The majority of the studied section of proposed roadway falls on Alaska Native Claims Settlement Act land, from outside of Pedro Bay through Corridor Options 5 and 6. 2.7 miles cross privately owned property (DOT&PF, 2007, p. 9-1), bisecting land owned by Bill Williams at the Williamsport end (Klouda, 2010). Note that the IRTCA analysis does not include the three mile section between Pedro Bay and the crossing at Iliamna River.

14.0 PEDESTRIAN ACCOMMODATION

Because of very low traffic volumes, pedestrian accommodation is not receiving explicit consideration at this time.

15.0 UTILITY RELOCATION AND ACCOMMODATION

Utility reconnaissance and analysis has not been an element of previous studies or documents. Because of the relatively undeveloped nature of the road, utilities would appear to be most likely at the Pile Bay or Williamsport ends; though, in general, road support will not require utilities. Exceptions would be required lighting, air exchange, and emergency functions if a tunnel was considered. Note that at this time, development costs preclude

tunnel development (DOT&PF, 2007, p. 8-28). Another exception might be for support of Integrated Transportation Systems (ITS) applications, such as road cameras or sensors.

16.0 PRELIMINARY WORK ZONE TRAFFIC CONTROL

Construction will need to accommodate cargo transportation between Williamsport and Pile Bay, and portaging of boats between Cook Inlet and Lake Iliamna. There are no alternative routes available, so it may be necessary to have the road in passable condition for these events. This could cause significant disruption and cost increases for construction.

For road construction phases where passage is not possible during construction, mitigating actions may include:

- scheduling construction to avoid the shoulder seasons of fishing season, when boat transportation between ports may be most intense.
- scheduling construction to avoid fishing season all together, though this this would eliminate a significant amount of the summer construction season for consideration.
- scheduling construction around barge landings at Williamsport (delivery at Williamsport is highly variable due to dependence on tides).
- creating a permitting system for passage during construction, necessitating a significant public involvement and notification campaign.

This project may be considered significant. Depending on impacts, this project may require, "greater than normal attention to traffic control to eliminate sustained work zone impacts greater than what would be considered acceptable" (DOT&PF, 2014a, p. 1400-1).

17.0 PAVEMENT DESIGN

This project will not include a paved surface.

18.0 COST ESTIMATE AND CONSTRUCTION CONSIDERATIONS

This estimate is based on the IRTCA (DOT&PF, 2007), which focused on preparing the road for industrial use. There are two key pieces of information missing from the IRTCA report because they were not in the scope of that study:

- proposed barge landing and support facilities at Pile Bay, and
- road costs for the road from Pile Bay to the Iliamna River.

Table 2 assumes that Corridor Option A (Segment 4) road costs are the same for the section from Pile Bay to Iliamna River, though a more accurate cost estimate needs to be developed. Table 2 below does not include Pile Bay improvements, interim improvements to Williamsport, or costs of interim uplands development at either location.

It is unlikely that DOT&PF would be able to build this entire project at once, necessitating a phased approach. The section of the project that is most likely to be put off is Segment 5 and development of the deep water port. That leaves DOT&PF to determine what elements would be included in an initial phase, which could include:

- road improvements between Williamsport and Pile Bay,
- road construction down to the eventual Port Site 3,
- improvements to Pile Bay facilities (yet to be studied), and
- construction of a barge facility at Port Site 3.

In addition to construction phasing, other possible cost savings include:

- upgrading the road, but leaving it a one-lane road,
- providing more pull-outs, and
- extending road to an area where a landing craft can land at most tides and not developing a formal dock.

The $72 million cost estimate in the main planning document assumes approximately $62 million for construction of Corridor Option A and Segment 6, with $10 million for improvements at Williamsport and Pile Bay. As illustrated here, that figure is a starting point and further scoping may modify that figure significantly (Table 2).

Table 2, Estimated Costs: Estimated costs for elements of the preferred option.

Segment 4 (Option A)	length or number	Unit	Per Unit Price	Cost
Road costs	16	miles	$ 903,856	$ 14,461,700
48" Culvert	52	feet	$ 24,000	$ 1,248,000
60" Culvert	56	feet	$ 31,000	$ 1,736,000
84" Culvert	64	feet	$ 56,000	$ 3,584,000
Iliamna Bridge	1	300' bridge	$ 7,500,000	$ 7,500,000
Chinkleyes Creek Bridge	1	800' bridge	$ 18,540,000	$ 18,540,000
Bridge, unnamed drainage	3	40' bridge	$ 1,500,000	$ 4,500,000
TOTAL:				$ 51,569,700
2015 TOTAL:				**$ 59,273,000**
Road from Pile Bay to Iliamna River (2015)	2.8	miles	$ 1,038,879	**$ 2,908,861.20**
Segment 5				
Road costs	9.3	miles	$ 1,139,774	$ 10,599,900
84" Culvert	64	feet	$ 56,000	$ 3,584,000
TOTAL:				$ 14,183,900
2015 TOTAL:				**$ 16,303,000**
Segment 6				
Road costs	1.9 miles	miles		$ 2,078,600
2015 TOTAL:				**$ 2,389,570**
Port Site 1: Deep Water Dock				$107,730,000
2015 TOTAL:				**$ 123,823,000**
Port Site 3: Barge Dock				$ 27,790,000
2015 TOTAL:				**$ 31,941,000**

All cost data from IRTCA (2007), Appendix C. Road length and cost from Table C-6. Culvert and bridge costs from Table C-4. Port costs are from Table C-8.

*Segment 4 per mile road costs with inflation factor applied, see note below.

Total cost converted to 2015 dollars with U.S. Bureau of Labor Statistics calculator: http://data.bls.gov/cgi-bin/cpicalc.pl?cost1=67832&year1=2007&year2=2015

19.0 ENVIRONMENTAL COMMITMENTS AND MITIGATION

Anticipated environmental concerns include:

- wetlands and drainage concerns,
- anadromous fish passage, and
- preservation and/or documentation of possible historic and cultural resources.

20.0 PRELIMINARY BRIDGE LAYOUT

There are six existing bridges recorded in the DOT&PF Roadway Information Portal (RIP) along WPB (Table 3, DOT&PF 2015).

Table 3, Current Bridges on WPB

Name	Number	MP	Length (ft)	Construction
Chinkeleyes Creek	0484	3.5	140	Modular steel pony truss (Bailey bridge)
Four Mile Creek	1235	4.1	40	Steel stringer with timber running plank
Unnamed Creek	7143	6.0	10	
Timberline Creek	1321	7.6	30	Steel stringer with timber running plank
Unnamed Creek	7142	8.1	10	
Iliamna River	2137	11.0	190	Modular steel pony truss (Bailey bridge)

DOT&PF 2015.

Bridges numbered 7143 and 7142 are not included in the 2013 Bridge Inventory Report.

Bridge costs outlined in the IRTCA assume steel piles with vertical steel sheet piles for armor, but field data was not available to confirm that assumption. Other options for abutments would include rock, steel bin walls, rock-anchored piles, or fabric-reinforced fill.

Cost estimates for single span bridges (#1235 and 1321) assumed steel box beams supporting a concrete deck. Steel I beams with precast concrete deck or bulb-t beams would have comparable costs.

Cost estimates for longer bridges (#0484 and 2137) assume 100 foot-length supported spans, with in-stream piers as needed.

The IRTCA recognizes that further analysis of each drainage and the appropriate crossing method should be a part of future design efforts (DOT&PF, 2007, p. 6-3).

21.0 IDENTIFICATION AND JUSTIFICATION OF DESIGN EXEMPTIONS AND WAIVERS

WPB is a rural major collector and could be considered a rural highway by standards outlined in the PCM (DOT&PF, 2014a, p. 1100-6). Final design standards have not been established, and proposed layouts are very preliminary. The IRTCA's initial treatment of alignment focuses mainly on minimizing excessive cross slopes and road grades (DOT&PF, 2007, p. 8-25 through 8-36). Due to terrain, there may be areas were design varies from standards, and those will need to be documented. The PCM (DOT&PF, 2014a, section 1100.3.2 ,1100.3.3) provide more information on design exemptions and waivers.

22.0 MAINTENANCE CONSIDERATIONS

Maintenance costs cannot be separated from how the road will be operated, especially with the goal of year-round access.

A traditional single-lane road provides the most challenges, requiring some operational considerations.

- Do larger commodity shipments require a lead and/or sweep car to clear the road of opposite-direction traffic?
- Would the road be one-way in one direction for a span of time (for instance, to accommodate deliveries from Williamsport to Pile Bay) and one-way in the opposite direction for a span of time?
- Would road users be required to broadcast their position via radio on a common communications frequency?
- Would there be a check-in/check-out station at each end that briefed users on traffic and road condition?

A single-lane road with pull-outs has similar concerns. While pull-outs are available, their use depends on operating speed and being able to see on-coming traffic with enough time to choose a pull-out.

Any restrictions to regular traffic also impact maintenance crews, increasing complexity and man hours required for maintenance activities. This applies not only to road work but to permitting and communications as well.

A two-lane road or quasi-single-lane road (15 to 16 feet wide with a low posted speed, such as 35 miles per hour) provide the most flexibility for users and maintenance crews and save money on maintenance costs.

A wider, more usable road will result in more traffic, and it is a logical assumption that many who use the road may not be familiar with the special operations along the road. Boat haulers may need to get a "wide load" permit and conduct special operations to accommodate other traffic.

23.0 INTELLIGENT TRANSPORTATION SYSTEMS FEATURES

Intelligent Transportation Systems (ITS) leverage technology to reduce man hours required for safe and efficient transportation. Current applicable projects include (DOT&PF, 2015b):

- 511 Traveler Information: This service could be used to notify users of restrictions during construction or special operations after construction. It can also notify users of hazards due to poor weather. One possible application is in notifying users of avalanche danger, avalanche control, or of travel delays due to road blockage or avalanche clean-up.
- Alaska Land Mobile Radio: This technology could improve communications regarding travel emergencies along the route. Deployment is under way, not all existing DOT&PF vehicles have access to the technology.

- Bridge scour detection system: This system alerts maintenance staff of adverse scour conditions. This reduces man hours inspecting bridges, especially helpful in remote areas with long lengths of road. These systems are installed and maintained by the USGS.

24.0 CONCLUSION

This appendix has consolidated WPB Corridor route information from 18 sources, none developed with the current corridor in mind.

Recommended future studies items include:

- A well-defined purpose and need for the project.
- Long-term needs for Pile Bay to function as a port hub, and phasing recommendations for various elements.
- WPB:
  - Two lane road? Single lane with pull-outs?
  - Would the road alignment or pull-outs require coordination with local land owners?
  - What access control should be established at this stage?
  - When should extensions to port locations be constructed? (See discussion below)
  - Possible further analysis comparing the preferred option in this appendix to the "Option C" outlined in the IRTCA, which found construction costs for both to be comparable.
- Port facilities at the Cook Inlet end:
  - What would trigger development of Port Site 3? Is immediate development warranted, or should Williamsport be upgraded for interim operation?

  - What would trigger development of Port Site 1?

- Project funding options.
- Hydrological analysis and further development of drainage crossing options.

This project provides important freight and industry access for the residents of Lake and Peninsula Borough. With the Kaskanak Road project, it establishes reliable transportation infrastructure between Anchorage (Alaska's largest community) and the rich fishing resources of Bristol Bay, and keeps Alaska moving through service and infrastructure.

25.0 CITATIONS

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