

8.0 Infrastructure Profile

Every community in Southwest Alaska is challenged with developing and maintaining municipal infrastructure sufficient to provide for ongoing economic activity and growth, sustain the basic needs of the community, and provide for a reasonable quality of life. Given the increased cost of construction in rural areas, lack of trained personnel to operate municipal services, and limited existing infrastructure that is often insufficient to adequately serve community needs, the communities of Southwest Alaska have urgent and growing needs for infrastructure expansion and enhancements.

According to the Alaska Department of Commerce, Community & Economic

Development (DCCED), communities in Southwest Alaska had funded and planned infrastructure development projects totaling more than \$300 million in 2009 and 2010. Table 8.1 profiles the capital improvement projects for each borough and census area as categorized by DCCED from the State of Alaska Capital Projects Database.

As part of the CEDS development process, all municipal and tribal governments were asked to submit candidate projects for a regional infrastructure needs assessment. Appendix B presents a comprehensive listing of capital improvement projects for the region. Based on these submissions, additional infrastructure and capital needs projects funded for 2002 totaled \$132.4 million for the region. Ongoing capital improvement needs and potential projects amount to \$49.8 million for 2003 and \$69 million for 2004.

In the early 2000s, many of the infrastructure projects in the region were directly attributable to increased federal funding as a result of the efforts by the Alaska Congressional Delegation, particularly Senator Ted Stevens.

In recent years, available funding has been significantly downsized due to the 2007-2009 financial crisis, among other factors. At the time of this printing, state and federal funding were decreasing.

Creation of the Denali Commission in 1998 increased the availability of federal and state funding to provide critical utilities, infrastructure and economic support throughout Alaska. The Commission focuses on ten major categories of improvement:

- Community Planning
- Conference Sponsorships
- Economic Development
- Energy
- Government Coordination
- Health Facilities
- Solid Waste
- Teacher Housing
- Training
- Transportation

Transportation

SWAMC was instrumental in the development of the Southwest Alaska Transportation Plan that was published by the Alaska Department of Transportation & Public Facilities in 2002, and later revised in 2004. The findings presented in the plan provide the foundation for this discussion of transportation infrastructure in the Southwest Region. Given recent changes in the regional economy, particularly with respect to the downturn in salmon fisheries, the priorities for development, as presented in the

Table 8.1: Southwest Alaska Capital Improvements Summary – 2007 & 2008

	Economic Development	Basic Infrastructure	Health and Safety	Improved Services	Total
Aleutians East Borough	\$0	\$14,830,263	\$0	\$56,025,298	\$70,855,561
Aleutians West Census Area	\$26,870,000	\$5,135,388	\$200,000	\$15,049,875	\$47,255,263
Bristol Bay Borough	\$7,448,552	\$232,321	\$0	\$26,140,570	\$33,821,443
Dillingham Census Area	\$189,000	\$9,606,457	\$2,681,100	\$29,585,574	\$42,062,131
Kodiak Island Borough	\$0	\$13,024,339	\$8,545	\$82,085,336	\$95,118,220
Lake & Peninsula Borough	\$0	\$2,856,480	\$2,610,299	\$7,020,605	\$12,487,384
Southwest Alaska	\$34,507,552	\$45,685,248	\$5,499,944	\$215,907,258	\$301,600,002

Source: DGED, Rural Alaska Project Identification and Delivery System

Southwest Plan, need to be re-thought with a specific focus on seafood transport. The state of the economy suggests that the first priority should be on transporting goods to market. In addition to expediting the movement of people and goods in and out of the region, thereby increasing economic opportunities in the region, improved transportation will enhance other elements of the region’s infrastructure: communications, energy, water and sewer.

Public involvement and outreach were an integral part of the development of the Southwest Alaska Transportation Plan and the subsequent 2004 update.¹ One of the first tasks for the project was to assemble an Advisory Committee to help establish the goals and objectives of the plan, and to provide input throughout the planning process. The study team and the advisory committee established means to ensure early and continuous public involvement. In the 2004 update, DOT&PF held public meetings with five communities and five Native councils that were going to be

affected by the Transportation Plan (located mainly in the Lake & Peninsula Borough). The Plan, as it exists now, is not fully supported by communities in the Southwest Region. Several communities have expressed dissatisfaction with the results of the study, particularly the prioritization process. DOT&PF is proposing a full rewrite of the Southwest Alaska Transportation Plan in 2010.

The Existing Transportation System

Geography has limited inter-and intra-regional transportation in Southwest Alaska to primarily two modes: air and water. Because of the great distances between communities within and outside of the region, time-sensitive movement of lighter goods is typically done by air, while other travel – particularly movement of bulky or heavy cargo – is typically conducted by water.² Table 8.2 summarizes the current transportation infrastructure for Southwest Alaska. Air taxis and freight companies can be found by inquiring with the regional hubs.

Corridor Delineation³

The Southwest Alaska Transportation Plan envisions transportation improvements in the region based on the development of four key transportation corridors. The purpose of corridor delineation is to recognize the patterns of existing travel and desired travel in the region and to establish and protect the surface transportation “highways” that would best serve the region’s long-term social and economic infrastructure needs. The four primary corridors for the region are:

Pacific Coast Marine Corridor

Connects the communities of Kodiak Island, the fishing communities on the eastern side of the Alaska Peninsula, and the port of Dutch Harbor. This corridor ties into the Alaska road/rail network through the port of Homer. As the name implies, this corridor serves marine transportation needs, including tug and barge service, the Alaska Marine Highway

Table 8.2: Southwest Alaska Transportation Infrastructure, Features and Usage

Transportation	Aleutians East Borough	Aleutians West Census Area	Bristol Bay Borough	Dillingham Census Area	Kodiak Island Borough	Lake & Peninsula Borough
Regional Air Hub 2004	Cold Bay	Unalaska	King Salmon	Dillingham	Kodiak	Iliamna
Major Passenger Air Carriers	2	2	2	2	2	0*
Annual Air Passengers (pax trips) 2008	9,105	28,234	42,310	32,215	11,218	9,545
Runways 3,300' or Longer*	6	6	4	5	5	11
Runways Less Than 3,300'*	3	0	4	11	8	11
Miles of Intra-Community Roads	0	0	15.5	25	64	30
Major Ports and Harbors	Akutan, Cold Bay, False Pass, King Cove, Sand Point	Adak, St. George, St. Paul, Dutch Harbor/Unalaska	Naknek	Dillingham	Kodiak, Port Lions	Chignik, Port Moller

*Runways include seaplane data

Source: 2004 Southwest Alaska Transportation Plan; www.aimav.com

System, and commercial fishing interests.

Cook Inlet to Bristol Bay Corridor

Connects the rich seafood resources and communities in Bristol Bay, as well as the Iliamna Lake communities, with resupply, support and market centers in the Alaskan railbelt. It consists of a marine segment (Cook Inlet), intermodal transfer location at Williamsport, and then primarily overland and riverine routes along Iliamna Lake and the Kvichak River valley to the port town of Naknek on Bristol Bay. Its function is primarily logistical. Transportation improvements along this corridor would lower the cost of transport, thus yielding benefits to the quality of life of residents and helping to stimulate economic growth of the sub-region.

Alaska Peninsula Corridor

An overland corridor linking communities of the Alaska Peninsula from Ivanof Bay to Naknek. The key facility in this corridor is the port at Chignik, from which fuel and supplies can be disbursed to other communities via road connection. From Chignik the corridor extends west along the Gulf of Alaska coast to Perryville and Ivanof Bay. It also extends from Chignik to Chignik Lake and Chignik Lagoon, then crosses the Alaska Peninsula to Port Heiden. From Port Heiden the corridor extends north, connecting Pilot Point, Ugashik, Egegik and South Naknek, and tying into the Cook Inlet to Bristol Bay Corridor at Naknek.

Dillingham/Bristol Bay Area Corridor

An overland corridor connecting the port city of Dillingham to the Cook Inlet to Bristol Bay Corridor. It includes a crossing of the Wood River at Aleknagik and a major crossing of the Nushagak River. There are several possible tie-in locations to the Bristol Bay to Cook Inlet corridor. The plan models a corridor from Aleknagik to Igiugig via Levelock.

Alaska Marine Highway System Improvements⁴

The Alaska Marine Highway System (AMHS) provides a critical modal alternative to air travel for residents of Southwest Alaska – for both freight and passenger movement. State-sponsored marine transportation services were originally established in Southwest Alaska, Southeast Alaska and Prince William Sound (PWS) to provide passenger, freight and vehicle transport for Alaskan communities where highway facilities on land were not feasible. The importance of the AMHS to basic transport is recognized in that many AMHS projects are eligible for federal surface transportation funds that in most other states can only be used on highway facilities. In 2002 AMHS received designation as a National Scenic Byway (SB). Congress created the SB program in 1991 to preserve and protect the nation's most scenic routes.

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All of the coastal communities in Southwest Alaska desire improved marine transportation service, and have historically supported ocean-going ferry service, including the building of Kennicott and its potential service in the region. The introduction of passenger ferry service in Bristol Bay or the Pribilofs was investigated for the plan but tabled because it was clearly cost-prohibitive. The communities on the southern side of the peninsula receive on average seven trips per year by the Tustumena. The Tustumena and the Kennicott are currently the only AMHS owned and operated vessels with the requisite U.S. Coast Guard certifications (for open-ocean operations) necessary to serve these communities.

On the other hand, the Tustumena currently spends 25.6% of its annual vessel miles and approximately 37% of its annual operating time in service to PWS. It is the only vessel serving PWS in the winter months. The Prince William Sound Transportation Plan identified that future PWS transportation needs can be better met year-round by new high-speed vessels. Assuming that these new vessel types are deployed in PWS, the Tustumena should become available for increased service in

Southwest Alaska. Specification of possible schedules and cost issues related to this redeployment are discussed later in this report.

Shore facilities serving AMHS operations in this part of the state are, generally speaking, in a diminishing state of readiness. Some are municipally owned, and some are privately owned, but none receive the level of attention that are afforded to facilities elsewhere in the system that AMHS owns (and operates) outright. The plan's recommendations for facility improvements are warranted for the sustaining of current operational levels, but are given additional impetus due to the prospect of increased AMHS activity in Southwest Alaska by the Tustumena.

The Murkowski Administration established the Marine Transportation Advisory Board to oversee development of improvements in the management and operations of the AMHS. Southwest Alaska is represented by Mayor Shirley Marquardt (City of Unalaska) on this board.

In addition to improved service, the region seeks dependable, multi-year scheduling and increased or improved docking and terminal facilities to facilitate higher yield utilization of the AMHS in the region. Table 8.3 outlines passenger embarkation patterns for Southwest Alaska ports of call for the AMHS from 1995 to 2008. While the system in general has had declining usage over the period, embarkation for the Southwest route has generally increased. Still, given the limited service in the region, embarkation on the Southwest route only accounts for less than three percent of system usage.

Table 8.3: Alaska Marine Highway Embarking Passengers Southwest Alaska Ports of Call 1995 - 2008

Embarking Passenger Traffic	1995	2000	2005	2006	2007	2008
Akutan	25	106	210	325	349	217
Chignik	215	339	126	303	265	186
Cold Bay	66	66	90	150	150	83
Dutch Harbor	236	440	720	642	645	339
False Pass	7	39	3	44	76	23
King Cove	252	204	270	537	341	291
Kodiak	5,104	7,197	6,528	8,754	9,124	9,368
Port Lions	215	417	418	1,020	1,471	1,405
Sand Point	231	345	186	405	374	230
Southwest Total	6,351	9,153	8,551	12,180	12,795	12,142
Total AMHS	396,543	351,460	282,236	307,220	321,609	340,412

Source: http://www.dot.state.ak.us/amhs/reports_shtml

Port and harbor improvements⁵

Marine transportation is central to Southwest Alaska's economy, character and accessibility. Utilitarian in nature, marine facilities have evolved to support the operations, marketing, and distribution of the region's fisheries resources. These facilities also serve the Alaska Marine Highway System, which currently serves nine ports of call in the Southwest region, each requiring docking, loading and offloading capacity.

Because primary economic benefits flow into the region through ports, port facilities are a logical starting point for the development of regional transportation infrastructure that aims to distribute goods and services to external markets and regional communities more

efficiently. Thus, the Southwest Alaska Transportation Plan highlights several specific ports as key intermodal transfer points, notably Kodiak, Williamsport, Pile Bay, Chignik, Dillingham, Naknek, King Cove and Unalaska. In particular the plan concentrates on new public dock development at Chignik, Williamsport and Pile Bay to support regional transportation and economic development goals.

The lack of a regular federal funding program for capital improvement of ports and harbors (such as exists for roads and airports) hampers the systematic improvement and maintaining of the region's ports and harbors, and places a heavy burden on the state and local governments. As a result, many facilities are capacity-limited and overused, contributing to a diminished service life. Poor salmon returns

earlier in the decade further eroded the level of tax revenues available for many of the Southwest Alaska communities, and limited their ability to fund upkeep and maintenance of these critical facilities. The State currently has a matching grant program to help municipalities make capital improvements to their harbors, but the program is underfunded and in jeopardy.

A few highlighted port and harbor projects from the Southwest region include:

- In King Cove, the Babe Newman Harbor was dedicated in the fall of 2002. A joint project of the Army Corps of Engineers and the Aleutians East Borough, the harbor is operated by the City and provides additional moorage for 60' to 150' fishing vessels.
- A small boat harbor is currently under construction through 2011 in St. Paul. The project is being operated by the

Army Corps of Engineers and should provide protected moorage for the City's small boat fleet and allow them to fully participate in the region's commercial fisheries.

- In Unalaska, a city whose economy is heavily dependent on the commercial fishing industry, there are ten major docks including the International Port of Dutch Harbor, with 5,200 feet of moorage and 1,232 feet of floating dock.
- On Kodiak Island, the City of Kodiak's main port includes two boat harbors with 600 boat slips and three commercial piers – the ferry dock, city dock and container terminal. A \$20 million breakwater on Near Island provides another 60 acres of mooring space at St. Herman Harbor. The City also acquired a 600-ton, 54-foot-high travel lift to service the regional fishing fleet.

- In Naknek, the seat of the Bristol Bay Borough, the Denali Commission was the lead agency in helping to fund the nearly \$7.5 million expansion and repair of the Port of Bristol Bay in FY2009.
- Within the Lake & Peninsula Borough, the City of Chignik is currently developing a breakwater, a 110-slip small boat harbor and a public dock.

Several other port and harbor improvement projects are currently programmed, or in some phase of construction. A complete list of these improvements can be found in Appendix B, Capital Improvement Projects.

Aviation System Improvements⁷

Aviation is the principle means of transporting people to communities throughout the Southwest Region. A lack of interconnected roads means lighter goods such as mail and perishable food typically move by air. Airfreight comprises approximately two percent of all Southwest volume. Airfreight plays an important role in the movement of high-value items. The U.S. Postal Service Bypass Mail program provides much of this freight and passenger service.

Demand for better air connections, increased service and safer and travel between communities in the Southwest Region reflects a trend throughout rural Alaska. There are several air carriers that transport passengers within and between communities. Perishable goods are shipped by air through regional or sub-regional hubs. Many local airport runways

Table 8.4: Southwest Alaska Airports

Airport	FAA Category	DOT&PF AASP Category	Passenger Hub	USPS Hub	Part 139 Certified	Non-Stop Service to Anchorage
Cold Bay	Commercial Service	Regional	Yes	Yes	Full	No
Dillingham	Primary	Regional	Yes	Yes	Full	Yes
Iliamna	Primary	Regional	Yes	Yes	Full	Yes
King Salmon	Primary	Regional	Yes	Yes	Full	Yes
Kodiak	Primary	Regional	Yes	Yes	Full	Yes
Port Heiden	Primary	Community	Yes	Yes	Full	No
Sand Point	Commercial Service	Community	Yes	No	Full	Yes
St. George	General Aviation	Community	Yes	No	No	Yes
St. Paul	Commercial Service	Community	Yes	No	Full	Yes
Unalaska	Primary	Regional	Yes	Yes	Full	Yes

Source: 2004 Southwest Alaska Transportation Plan

are insufficient in length or width to handle large aircraft, resulting in expensive shipping and scheduling operations. In some areas, like the Bristol Bay Borough, goods arrive by air, are loaded into trucks, and then transported over a paved road (King Salmon to Naknek).⁶

The region has 66 airports, including 13 seaplane facilities. DOT&PF owns, operates and maintains 42 of these. Several of the region's airports serve as hubs for the distribution of mail and air cargo to surrounding communities. Key airports in the Southwest Region are provided in Table 8.4.

The demand for air travel can be met through increasing the frequency of service and/or increasing the capacity (i.e., size) of aircraft. Airlines generally find it more cost-effective to fly a larger airplane than to increase the number of flights. Runway length is the primary driver of increasing aircraft capacity as larger aircraft can require longer runways. The 2004 Revised Southwest Alaska Transportation Plan recognizes the Alaska Aviation Coordination Council's recommendations for a minimum runway length of 3,300 feet and all-weather approach and landing capability for public airport rural access within the state.

Additionally, several broad policy issues and suggestions are included within the transportation plan, including: USPS bypass mail carrier selection; rising insurance costs and effect on passenger air service; minimum design standards for medevac; and consideration of "non-essential" needs (i.e. air carrier concerns, community desires) in airport improvement design and statewide project scoring.

Specific aviation improvement projects are found in Appendix B.

Land Transportation Improvements⁸

Roads

Southwest Alaska has very few roadways that connect communities:

- A 15.5-mile road connects King Salmon and Naknek.
- An extensive road network remains from the World War II military buildup in Kodiak, linking the City of Kodiak to the Coast Guard community at Womens Bay, several outlying neighborhoods, Cape Chiniak, Buskin Beach, and Narrow Cape.
- A 23-mile road connects Dillingham and the south shore of Lake Aleknagik. Construction of a bridge over the Wood River, which will provide a link to Aleknagik on the north shore of the lake, is programmed as part of the Statewide Transportation Improvement Program (STIP) and was part of a construction bond package passed by Alaska voters in 2008.
- The Newhalen Village Road connects to the Iliamna Village Road to link these two communities.
- A road extends 13 miles from Iliamna towards Nondalton. Completion of this roadway, including a new bridge over the Newhalen River, is also programmed as part of the STIP.
- A 15.5-mile earthen road with one lane, and no shoulder now connects Williamsport (which is located on

lower, western Cook Inlet) with Pile Bay (located on the east shore of Iliamna Lake). This road, although primitive, is used seasonally to transport gillnetting vessels between Cook Inlet and Bristol Bay. It is also used to transport some freight to Iliamna Lake communities from June through November. In addition, a primitive road extends from Pedro Bay east for part of the distance to Pile Bay.

The small population in the region and the high cost of building and maintaining roads argues against adding a large volume of highway miles in Southwest Alaska. The most effective use of roadways in this part of the state has been in linking communities together that are relatively close to each other geographically, and in improving efficiencies and reliability in the movement of people and goods through the region.

Selected Community Linkages⁹

Considering the previously mentioned major transportation corridors, the portions of each corridor that provide the greatest near-term benefit and projects contained within these portions are recommended. Transportation projects like these will not only improve the movement of people and good throughout the region, they will support other infrastructure development, such as the development of a fiber optic back bone in the Southwest Region. The development of information infrastructure will provide Southwest Alaska communities with access to broadband connectivity and provide for improved telecommunications,

health care, education, homeland security and economic development opportunities.

Transportation projects are selected and prioritized by the Alaska Department of Transportation and Public Facilities (DOT&PF) using the STIP (Statewide Transportation Improvement Program). Appropriations for these projects are contingent upon available funding. Note, the actual funding and acknowledgment of STIP projects are subject to change as the political atmosphere of the state changes and legislative decisions regulate how monies are channeled to different agencies and communities throughout the state.

Williamsport to Pile Bay Roadway Improvements

The existing road between Williamsport and Pile Bay is already in use for the transport of fishing vessels from winter refitting in Homer to the summer fishing grounds in Bristol Bay and back. Much of the time it is the only route that provides access for heavy equipment to reach the Iliamna area. The road itself has not been adequately maintained over the years, is exceedingly narrow in places, and several bridges need upgrading. But the reason the plan endorses this project is because of its value. Coupled with navigation improvements at Williamsport and a public-use dock and ramp at Pile Bay, this route becomes the essential conduit for the movement of freight and commodities via barge from the Railbelt to the communities around Iliamna. The potential volume of fishing vessels being transported to and from Bristol Bay increases as well. Improving this facility immediately lowers costs to users and residents and opens the Cook

Inlet to Bristol Bay corridor to new transportation possibilities in the private and public sector.

According to the 2004 revised STIP, projected capital costs for this project totals \$22.285 million while annual operation and maintenance costs equal \$209,250.

Chignik Intervillage Road

A road connecting the three nearby communities of Chignik, Chignik Lake and Chignik Lagoon is expected to improve overall transportation reliability and safety, as well as encourage economic efficiency and consolidation of community services. This project complements the construction of a municipal dock at Chignik, and makes delivery of heating fuel to Chignik Lake and Chignik Lagoon less costly and more certain. Additionally, this project makes possible the consolidation/expansion of aviation services at one or more airports to make air travel more dependable and safe for the residents of all three communities. The STIP indicated that this project would cost an estimated \$28.146 million.

King Cove – Cold Bay Connection¹⁰

For almost two decades, the residents of King Cove have attempted to create a safe, dependable travel route in and out of their isolated fishing village. While King Cove does have an existing airport, weather conditions greatly affect flight schedules which can be delayed up to several days. The City of Cold Bay, located 7 land miles from King Cove, has

an all-weather airport. Both cities are located on the end of the Alaska Peninsula.

In 1998, a road plan between King Cove and Cold Bay was rejected. This potential connection runs through sensitive wetlands in Izembek National Wildlife Refuge. That same year, Congress appropriated \$37.5 million under the King Cove Health and Safety Act to construct a combination road-marine link between the two communities.

In 2009, President Obama signed the Public Omnibus Public Land Management Act into law. Part of the Act would establish a process to increase the size of the Izembek and Alaska Peninsula Wildlife Refuges by more than 61,000 acres (donated from the State of Alaska and the King Cove Corporation) in exchange for a small single-lane gravel road corridor (206 acres) leading from King Cove to an all-weather airport in Cold Bay. In addition, 1,600 acres of refuge lands on Sitkinak Island would be transferred to the State of Alaska. As a condition of the exchange, the Secretary of the Interior must determine that the land exchange and the road corridor are in the public interest. Residents in King Cove say the road access would provide safe, reliable surface transportation to the Cold Bay Airport and a critical link to the outside world. The City of King Cove estimates the total cost for the road to be around \$12 million to \$14 million.

Approved and Ongoing Projects⁹

Dillingham-Aleknagik and Wood River Bridge

Completion of the Wood River Bridge will provide Aleknagik residents better access to the regional airport at Dillingham and lessen dependency upon the Aleknagik airport. A bridge is needed to provide safe passage between the North and South Shores of the community. Many deaths have occurred due to unsafe traveling conditions during fall freeze-up and spring break-up. The bridge is needed to transport children safely to and from school. Completion of the bridge would also help Aleknagik consolidate services as it duplicates each service for the North Shore and South Shore.

According to the DOT&PF, the bridge will cost an estimated \$22 million.

Iliamna-Nondalton Road

Completion of this project, which includes the Newhalen River Bridge and upgrade improvements to the existing roadway between the communities of Iliamna and Nondalton, improves Nondalton residents' access to Iliamna's regional airport and lowers costs to Nondalton residents for goods and services. It lessens dependence upon Nondalton's small community airport, provides a safer transportation conveyance in marginal conditions, and improves the economic climate in both communities. The improved economic and business climate created by connecting these communities highlights the need for improving the freight corridor between Williamsport and Pile Bay.

Land transportation projects, proposed, planned, and under development, are listed in Appendix B.

Intermodal Connections

Additional transportation facilities are needed to provide connections between communities in all major corridors and their airports and marine ports and harbors. For most of the corridors these consist of relatively short airport and harbor access roads. More extensive roadway systems serve intermodal needs in Unalaska and Kodiak.

Intermodal transportation projects that are currently programmed for all communities in the Southwest Region are represented in Appendix B.

Water¹¹

The Department of Environmental Conservation (DEC) Water Quality Programs is developing a water quality monitoring strategy to guide its efforts to assess, track, prioritize for action, and report on the condition of Alaska's waters. The water monitoring strategy will help implement the water quality monitoring and reporting elements of the Alaska Clean Water Actions (ACWA) policy. The strategy will also assist the State in establishing that Alaska is developing and implementing a water-monitoring program, which meets the objectives of the federal Clean Water Act.

Water monitoring requires resources and as well as focus to ensure that information is developed which is useful for water resource decisions. There is a long history of monitoring by citizens and tribes, as well as local, state, and federal agencies. No one entity has the resources to monitor water quality in a state

with an estimated 365,000 river and stream miles, 44,226 miles of coastal shoreline waters, and more than a million lakes greater than five acres. Assessing Alaska's water will require partnerships among those individuals and institutions concerned about keeping Alaska's water fishable, swimmable, drinkable, and workable.¹²

Water Treatment Systems

Since the health of everyone in the community depends on safe water and sanitation, it is important that utility operators are well trained for their jobs. As of January 2001, all Class A drinking water facilities regardless of size are required to employ a certified water system operator. Class B drinking water systems using surface water or groundwater under direct influences of surface water must also employ a certified operator.

The State of Alaska has a certification process for utility operators. The certification requirements are different for different sized systems and different water treatments. For example, Class A systems are classified from Level I to Level IV and are required to have an operator certified at the level of the system. Class B systems are classified as either small-untreated water systems or small-treated systems, depending on whether the chemicals are added to the water.¹³

- **Class A** systems are those systems that serve 25 or more of the same people for at least six months of the year. They may also be systems with more than 15 service connections.

- **Class B** systems are those systems that serve more than 25 or more people for more than 60 days of the year, and are not considered Class A systems.
- **Class C** systems are those systems that serve less than 25 people and are not considered either Class A or Class B system.¹⁴

Wastewater Systems

All wastewater must be treated before it can be discharged into a river, lake, or ocean. There are very strict rules about water quality in a river, lake, or ocean. Alaska Water Quality Standards are designed to protect the many types of water users and the different types of water. Water users include humans who may drink the water, fish and other organisms that live in the water, and ecologically sensitive land areas, such as wetlands. Water quality standards are also designed to protect recreational users such as fisherman, swimmers, and boaters whose skin may come in contact with water.

All communities in the Southwest Region, with the major exceptions of Dillingham, Kodiak and Unalaska, have less than 1,500 residents. Wastewater systems for Alaska communities of 25 to 1,500 people include: community septic tanks attached to drainfields; community septic tanks attached to ocean outfalls; percolating sewage lagoons (tundra pools); discharging sewage lagoons (tundra ponds) with discharges to rivers or lakes.¹⁵

Table 8.5: Plumbing Facilities for Total and Alaska Native Housing Units

	All Housing Units			Alaska Native Housing		
	Total Units	Complete Plumbing Facilities	Lacking Complete Plumbing Facilities	Total Units	With Complete Plumbing Facilities	Lacking Complete Plumbing Facilities
Aleutians East Borough	724	694	30	324	320	4
Aleutians West Census Area	2,234	2,180	54	396	386	10
Bristol Bay Borough	979	755	224	177	172	5
Dillingham Census Area	2,332	1,722	610	930	688	242
Kodiak Island Borough	5,159	4,892	267	607	598	9
Lake & Peninsula Borough	1,557	929	628	390	325	65
Southwest Alaska	12,985	11,172	1,813	2,824	2,489	335
Alaska	260,978	229,117	31,861	26,556	20,453	6,103

Source: 2000 Census

The following facilities have current wastewater permits with the Alaska Department of Environmental Conservation:

- Alaska Pacific Seafoods Kodiak Plant
- Alyeska Seafoods Plant Unalaska Plant
- International Seafoods of Alaska Kodiak Facility
- Island Seafoods Inc Kodiak
- Kodiak Launch Complex
- Trident Akutan Harbor Seafood Plant
- Unisea Unalaska Seafood Plant (Dutch Harbor)
- Westward Seafoods Captains Bay Facility (Dutch Harbor)

Both water and wastewater systems are classified by Alaska Department of Environmental Conservation (DEC) as Intake, Distribution, Storage, Treatment Plant, or Sample Station facilities. Additionally, DEC identifies the source type as surface water,

ground water, or ground water under the direct influence of surface water. Groundwater is the most common source type in the Southwest region.

Remote Maintenance Workers and DEC Officers

The Remote Maintenance Worker Program (RMW) is a grant program administered by the Alaska Department of Environmental Conservation which was begun in 1981 to keep small community water and wastewater systems in operation for both public safety and convenience and to reduce the overall long-term costs to the State. RMWP is intended to serve small communities by providing skilled technical assistance in water and sewer system maintenance including on-the-job training to local operators. Currently a total of ten native health corporations are the grant recipients; they employ eight remote maintenance workers

who serve 187 communities throughout the State¹⁶ including:

- Aleutian Pribilof Island Association
- Bristol Bay Area Health Corporation
- Kodiak/Kenai

Certified Testing Labs in Southwest Alaska:

- Adak Drinking Water Laboratory, Adak
- Bristol Bay Area Health Corporation Kakanak Hospital, Dillingham
- Surefish Laboratory, Dutch Harbor
- City of Kodiak Wastewater Treatment Plant, Kodiak
- King Salmon Wastewater Facility, Naknek

Sewer

Rural drinking water and sewer systems remain the focus of a major effort by state and federal government to implement much-needed upgrades. Statewide, 70% of rural Southwest Alaska households use piped or closed haul systems-twice the number of households that were on these systems during the 1980s. Most of this progress occurred over the past decade as communities continue to convert from honey bucket systems to flush/haul, home septic or community septic systems. These improvements are specifically noteworthy considering the major environmental and technical challenges of designing and constructing sanitation facilities in rural Alaska.

As indicated in Table 8.5, most household units in the Southwest Region, have complete

plumbing facilities, with housing piped or closed haul systems. Some households are without piped water or closed haul systems for a combination of reasons ranging from poor building sites to a lack of operating funds. However, efforts still continue to properly outfit all housing units in the region.

Houses that do not have piped or closed haul systems operate on a flush haul or honey bucket haul system. Housing units with flush haul systems have separate holding tanks for sewage. When the tanks are full, wastes are

Table 8.6: 2007 Sewage Disposal Methods in Southwest Alaska Communities

Communities (50)	Yes #	Yes %	No #	No %
Piped Sewer System	35	70%	15	30%
Honeybucket Haul	5	10%	45	90%
Honeybucket Pits	9	18%	41	82%
Individual Septic Tank	31	62%	19	38%
Community Septic Tank	22	44%	28	56%
Sewage Pumper	23	46%	27	54%
Sewage Lagoon	24	48%	26	52%
Sewage Lift Station	16	32%	34	68%
Outhouses	18	36%	32	64%

Source: Alaska Division of Community and Regional Affairs

pumped to portable tanks and hauled to a disposal site, such as a sewage lagoon. As previously mentioned, most housing units in the Southwest Region have piped or closed haul systems that do not require this type of maintenance. Those individuals that have honey buckets or privies (outhouses) are responsible for carrying their own wastes to a

disposal site. Table 8.6 illustrates sewage disposal methods in Southwest Alaska.

According to past surveys, roughly two thirds of all small villages in Alaska charging for water and sewer services operate at a loss. To supplement customer fees, communities use other locally generated revenues (taxes, bingo receipts, gravel sales, etc.), state revenue sharing, and Tribal funds to help cover operations and maintenance expenses. Other cost effective measures would be to develop appropriate fee schedules and effective

collection policies. More important is the need for careful planning of projects, including substantial community involvement, to produce system designs appropriate for the community. And finally, an investigation into alternative technologies that might be more effective in small rural communities could assist.¹⁷

Communications

Local Telephone Services¹⁸

In 2000, the Regulatory Commission of Alaska (RCA) approved the transfer of all GTE properties in Alaska to other Local Exchange

Carriers (LEC). Alaska Communications Systems also received approval for name changes for all of its companies. Seventeen parent companies provide local telephone service in Alaska, many of which do business under a familiar local name.

The following companies service the Southwest Region:

- Alaska Communications Systems Group, Inc. (ACS)
- Bristol Bay Telephone Cooperative, Inc.
- General Communications, Inc. (GCI)
- TelAlaska, Inc.
- Nushagak Cooperative, Inc.
- United Utilities, Inc./United Companies, Inc.
- US Navy (Adak Island)

Alaska Communications Systems Group, Inc. (ACS)

Headquartered in Anchorage, ACS is Alaska's leading provider of broadband and other wireline and wireless solutions to Enterprise and mass market customers. The company serves over 74 communities throughout Alaska. ACS has been active in Alaskan communities since the early 1990's.¹⁹

Bristol Bay Telephone Cooperative, Inc.

In April 1974, the APUC granted Bristol Bay Telephone Cooperative, Inc. (BBTC) a certificate to operate local service. For two years the company struggled with one telephone installer/repairperson and one office

assistant. Being under financed, under equipped and understaffed, there were literally hundreds of volunteer labor and technical service rendered by local residents to keep the operation alive.

In February of 1984, certification was granted to extend service to the villages of Levelock, Igiugig, Ekwok, New Stuyahok, and Koliganek.

In February of 1985, BBTC organized a wholly owned subsidiary called Bay Cablevision, Inc. to provide cable television for Naknek and King Salmon consumers.

In 1990, BBTC, through its other wholly owned subsidiary Aleutian Telecom, Inc., formed a partnership with GTE Mobilnet out of Houston, Texas to provide cellular telephone service in Bristol Bay.²⁰

General Communications, Inc. (GCI)

GCI is an Alaska-based company providing voice, video and data communication services to residential, commercial and government customers.

Founded in 1979, GCI introduced long-distance competition to Alaska and has since grown to be one of the nation's premier integrated telecommunication providers. The company employs 1,250 Alaskans and has a current run rate of \$440 million.

GCI has a 45 percent share of the state's long-distance market, and is the state's largest provider of Internet services with dial-up, cable modem, wireless, digital subscriber line (DSL)

and dedicated access. Its cable television services pass 90 percent of the state's households with 65 percent penetration. Digital cable and cable modem service is available to 90 percent of its subscribers. The company offers facilities-based local telephone services in Anchorage, Fairbanks and Juneau, and has obtained a 20 percent statewide market share.

GCI provides various services throughout the Southwest Region, including Internet, Long Distance, and special services such as School Access and TeleHealth. The one GCI office location in the Southwest Region is situated in Kodiak.²¹

TelAlaska, Inc.

TelAlaska, Inc. is a family of companies that provides telecommunications products and services throughout Alaska. These companies include: Interior Telephone, Mukluk Telephone, TelAlaska Long Distance, Eyecom Cable, and TelAlaska NetWorks. TelAlaska provides local exchange telephone service to seven Southwest Alaskan rural communities including: Cold Bay, Dutch Harbor/Unalaska, Iliamna, Newhalen, King Cove, Port Lions and Sand Point.²²

Nushagak Cooperative, Inc.

The early years of telephone service in Dillingham - where as many as 10 people shared a single party line - brought many complaints from residents. Nushagak Electric Cooperative stepped in and offered to start up its own telephone cooperative.

In 1974, Nushagak Telephone Cooperative purchased the formal local company and within six years had telephone service to Dillingham, Aleknagik, Clarks Point, Manokotak and Ekuk. Today, the Nushagak Cooperative has extended telephone service to Portage Creek. Subsidiary businesses include Nushagak Cable Television and NushTel Internet.²³

Unicom/United Utilities, Inc.

Unicom began in 1977 as United Utilities, Inc., a regulated telephone utility operating under a Certificate of Public Convenience and Necessity from the Regulatory Commission of Alaska. On January 1, 1984, the company was reorganized with United Companies as a parent corporation. Four affiliates; United Utilities, Manley Utility Company, United-KUC, and Unicom, Inc. are structured to meet specialized needs.

United Utilities has constructed and operates telecommunications systems in 58 communities. These systems bring United's customers in contact with others throughout the globe through a 100% digital switching network, satellite earth stations, radio, and microwave equipment. Manley Electric Company provides electrical power to the central Alaskan community of Manley. United-KUC provides telecommunications services to three Southwest communities: Togiak, Twin Hills and Unalakleet. Unicom, Inc. offers services not regulated by the Regulatory Commission of Alaska, such as cellular telephone services and Internet access.

On June 3, 2008, GCI bought UUI, KUC, and Unicom, subsidiaries of United Companies

Inc., a holding company owned by Sea Lion Corporation and Togiak Natives Limited, the Alaskan Native Village Corporations for Hooper Bay and Togiak. United Utilities and its subsidiaries are now owned by GCI Company²⁴.

Lifeline/Link-Up Service Programs²⁵

Nearly every telephone customer in the United States pays into the Universal Service Fund (USF) through a federal surcharge on telephone lines. The Universal Service Fund is used to offset operating costs of telephone service providers in high-cost areas, such as Alaska. Low-income rural communities and tribal lands across America qualify for a reduction in basic telephone service charges under the federal Lifeline and Link-Up programs, funded by the USF. To qualify for Link-Up and Lifeline, a person must participate in any one of the federal assistance programs.

A person qualifying for Link-Up America will receive up to \$30 of a home phone startup fee (even if it's a cell phone), not including the cost of the phone. Link-Up also lets consumers borrow up to \$200 for set-up fees, interest-free, for up to one year. The Lifeline Assistance Program provides discounts on monthly telephone charges to qualified low-income subscribers. Federal Lifeline support is available for basic residential service and subscriber-line customers.

To qualify for Enhanced Lifeline and/or Link Up services, one must be receiving assistance from one or more of the following programs²⁶:

- Supplemental Security Income (SSI)

- Food Stamps
- Federal Public Housing Assistance
- Low Income Home Energy Assistance
- Bureau of Indian Affairs general Assistance
- Tribally-Administered Temporary Assistance for Needy Families
- Head Start Programs (Only those meeting its income qualifying standards)
- National School Lunch Program (Free meals program only)

Long Distance

The Regulatory Commission of Alaska certifies Interexchange Carriers (IXC) to provide long distance services in Alaska. Alaska's largest statewide carriers are AT&T Alascom and GCI. In most cases LECs providing long distance services are reselling whole-sale long distance minutes from the major carriers. Although other U.S. telecommunications companies offer Alaskans greater choice in long distance than ever before and pre-paid telephone calling cards are a popular alternative, most Alaskans still purchase long distance service from AT&T Alascom or GCI.²⁷

It is difficult to compare long distance calling plans as features differ across carriers. As more bundled services are offered, Alaskan households and businesses can choose from packages offering Internet, cellular service, special features and long distance plans that help bring down prices. The database shows long distance prices for basic service and calling plans by community and provider. It is

important to remember that most Alaskans choose a calling plan over basic rates.²⁸

Cellular/Wireless Services

The major cellular providers in Alaska include: AT&T, ACS and DigiTel. Unfortunately, the availability of service within the state is concentrated within major hubs of Alaska and lie outside of the Southwest region. Currently, the Cities of Kodiak, King Cove and Cold Bay and some of the surrounding villages receive cell phone service through the abovementioned providers.²⁹

A special note should be made regarding GCI, who is also a major provider of cell phone service in Alaska. GCI holds the distinction of providing Alaskans the most widely available wireless coverage in the state. Currently, GCI has cell phone availability in 15 communities in Southwest Alaska and plans on expanding service in the region.³⁰

Internet

Affordable bandwidth remains the greatest impediment to Internet service in rural areas. In a 2001 telecommunications study prepared for the Denali Commission, the most recent data available, it was reported that local telephone providers cited high costs and limited availability of satellite space to provide Southwest Alaska Internet access. Since the report was published, more rural communities in the region have been able to gain access to the Internet, but through an outdated and very slow dial-up connection. Increasing the availability and bringing high-speed Internet to the region remains a priority of SWAMC.³¹

In 2005, the Regulatory Commission of Alaska (RCA) conducted an inventory of Internet availability for the entire state of Alaska. Their findings revealed that 43 communities in Southwest Alaska have dial-up and/or broadband access. Nine communities in the region do not have Internet providers at all. While Internet availability, particularly broadband, was high, the cost of many high speed plans runs almost twice as much as dial-up. Moreover, many of the communities that do have broadband access can only receive the signal through a wireless connection. Wireless is a much less reliable system of Internet as opposed to a hardwire connection and the speeds are only marginally better than dial-up. GCI, Nushagak Cooperative and TelAlaska were the most notable companies for providing Internet access in the region.³²

The future of bringing reliable, high-speed Internet access to Southwest Alaska is bright. At the end of 2009, \$25.3 million in federal stimulus grants were awarded to a partnership between Hooper Bay's village corporation (Sea Lion Corporation) and a telecommunications firm based in Colorado. Although Hooper Bay falls outside of the SWAMC region, the grant will affect Southwest Alaska as the partnership plans on delivering high-speed wireless Internet to more rural communities.^{33A}

In January of 2010 the US Department of Agriculture awarded GCI subsidiary United Utilities Inc. \$88 million to bring new or expanded broadband access to their service area by 2012. This area includes portions of Bristol Bay. The award was part of the American Recovery and Reinvestment Act (ARRA).

Additionally, the Kodiak Kenai Cable Company also submitted a broadband application to ARRA in order to lay a fiber optic cable linking Kodiak Island with the western coast of Alaska, all the way up to Barrow. If funded, the project could potentially bring increased broadband access to the majority of SWAMC communities. There was still no funding announcement as of the beginning of March 2010.^{33B}

Another exciting opportunity of extending broadband Internet to the region lies in a \$1.9 million grant the Denali Commission received in late November 2009. The National Telecommunications and Information Administration (NTIA), an entity of the U.S. Department of Commerce, awarded the grant to support a comprehensive broadband mapping initiative. The goal of the project is to increase broadband access and adoption through better broadband planning.³⁴

Internet and Schools

Alaska schools are in the 12th year of the "E-Rate" program. The E-Rate gives U.S. elementary and secondary schools a discount on telecommunications carrier services, including Internet access. E-Rate grants come from the federal Universal Service Fund. The reduction for telecommunications services is based on the number of students eligible for the National Free Lunch Program. Libraries and rural health care clinics also qualify for USF funding.³⁵

These discounted rates are restricted to school, libraries, and health care facilities and cannot be used to connect homes and businesses to the

Internet, even in low-income, high-cost areas. To date, there are no federal subsidies specifically for low-income Internet connections.

Television, Radio and Newspaper Services

At one time the only television station available in rural Alaska was the former Rural Alaska Television Network, now known as Alaska Rural Communications Service, or ARCS. In 1977, the state introduced satellite television in a few communities and by the mid-1980s operated a channel carrying a combination of commercial public television programs to 224 rural communities. By 1991, approximately 90 of those communities had their own cable television system and by 2001 the number increased to 118.³⁶

According to a recent survey by the Alaska Public Broadcasting Joint Venture, ARCS satellite receivers are working in 164 of the communities in the database. The research indicates that ARCS is a very important source of television programming in rural Alaska. In many communities it is still the major source of news, weather and other information about Alaska. Alaska One, the statewide public broadcasting service, is on a few cable television systems and available over the air in Juneau, Fairbanks, Bethel, Kodiak, and Unalaska, as well as by translator to a few other communities. Alaska has one commercial satellite television station (known as the SuperStation).

Only a handful of rural communities do not receive a primary or translated AM or FM

signal from an Alaska radio station. Four public radio stations are on satellite.³⁷

More and more homes now have Direct Broadcast Satellite dishes. According to 2001 estimates, the most recently available data, more than 16,000 Alaskans subscribe to DBS and about 6,000 use C-Band. The cost of DBS is decreasing as home satellite dishes get smaller.³⁸

The following media companies and organizations offer television service to the Southwest Region³⁹:

- Adak: Adak Cablevision
- Akutan: City of Akutan
- Aleknagik: Nushagak Cooperative
- Atka: Atxam Village Corporation
- Chignik: City of Chignik
- Clark's Point: Nushagak Cooperative
- Dillingham: Nushagak Cooperative
- Ekuk: Nushagak Cooperative
- King Cove: King Cove Corporation
- King Salmon: Bristol Bay Telephone Cooperative
- Kodiak: GCI
- Manokotak: Nushagak Cooperative
- Naknek: Bristol Bay Telephone Cooperative
- Nikolski: Nikolski IRA Council
- Old Harbor: City of Old Harbor
- Ouzinkie: Island Cable TV
- Port Lions: Eyecom Cable
- Portage Creek: Nushagak Cooperative
- St. George: St. George Traditional Council
- St. Paul: TDX Corporation
- Togiak: Frontier Cable, Inc.

- Unalaska/Dutch Harbor: Eyecom Cable

There are three major newspapers in the Southwest Region. The Kodiak Daily Mirror (Kodiak) is published Monday through Friday. The Bristol Bay Times (Dillingham) and the Dutch Harbor Fisherman (Unalaska) are both published weekly, every Thursday.

There are nine local radio stations in the Southwest Region. They are as follows:

- Dillingham: KDLG-AM, KRUP-FM
- Kodiak: KMXT-FM, KRXX-FM, KVOK-AM
- Naknek: KAKN-FM
- Sand Point: KSDP-AM
- St. Paul: KUHB-FM
- Unalaska: KIAL-AM

Energy⁴⁰

Table 8.7 clearly illustrates the different forms of house heating fuel that are utilized throughout the Southwest Region. Although there are numerous alternative energies being sought out, diesel fuel continues to be the primary source of energy in the region. Table 8.8 provides a comprehensive overview of power generation and consumption by community and utility company.

Recent state and federal rural projects replacing or upgrading tank farm facilities around Alaska are meeting with considerable success. According to a recent study conducted by the Alaska Industrial Development and Export Authority (AIDEA), upgrades and

consolidation of several farms into a single facility have reduced operating costs and helped minimize potential environmental impacts in communities.

Safe storage and timely distribution of bulk fuel is as critical as the fuel itself. All rural communities depend on well-functioning tank farms for their survival. Communities must be able to store enough fuel to meet their needs for an entire winter or face very high fuel charges for air-shipped supplies.

As a rule, state and federal dollars fund a majority of fuel storage facilities in rural Alaska. Local contributions generally comprise only a small part of the total cost of tank farm upgrades. Tank farm financing issues continue to be a major focus of statewide energy policy issues. A number of tank farm owners in rural Alaska have expressed concerns with plans to consolidate bulk fuel facilities. Along with addressing some of the technical issues, the Alaska Energy Authority is presently working

on developing an insurance pool for tank farm owners to help overcome the risk of increased liability.

There are numerous sources of power generation and different rates of consumption in the Southwest Region. Refer to Tables 8.8.A-B for a detailed summary of the diesel generating capacity, hydro generating capacity (if applicable), as well PCE rates.

The Power Cost Equalization Program (PCE), sponsored and managed by the Alaska Energy Authority, provides economic assistance to customers in rural areas of Alaska where, in many instances, the kilowatt hour charge for electricity can be three to five times higher than the charge in more urban areas of the state. The program seeks to equalize the power cost per kilowatt-hour statewide. However, even with PCE rural electric costs are 2-3 times higher than urban energy costs.

PCE is a core element to insure the financial

viability of centralized power generation in rural communities, and therefore increase the standards of living through the availability of communications, lighting, and the operation of a variety of infrastructures, including water and sewer systems, incinerators, etc.

There are numerous opportunities for the use of alternative energy sources in the Southwest Region. Studies are currently being conducted in the region to assess the potential for projects.

Table 8.7: Home Heating Sources in Southwest Alaska

House Heating Fuel	Aleutians East Borough	Aleutians West Census Area	Bristol Bay Borough	Dillingham Census Area	Kodiak Island Borough	Lake & Peninsula Borough	Southwest Alaska	Alaska
Bottled, Tank or LP Gas	3	61	0	4	97	5	170	4,873
Coal or Coke	0	2	0	2	0	0	4	1,090
Electricity	34	153	4	39	257	12	499	22,697
Fuel Oil, Kerosene, etc.	483	971	463	1,395	3,818	527	7,657	79,429
No Fuel Used	0	15	17	7	35	0	74	1,146
Other Fuel	6	49	2	10	115	4	186	2,416
Solar Energy	0	0	0	0	0	2	2	44
Utility Gas	0	11	0	3	44	1	59	101,703
Wood	0	6	4	43	58	37	148	8,202
Total	526	1,268	490	1,503	4,424	588	8,799	221,600

Source: 2000 Census

Table 8.8.A: Comparative Power Generation and Consumption by Borough or Census Area

Utility/Community	Number of Customers		Total kWh Sold (kWh)	Total Fuel Used (diesel)		Average Price of Fuel (\$/gal)	Total kWh Generated Diesel (kWh)	Total kWh Generated Non-diesel (kWh)
	Residential	Community Facilities		Gallons	Cost (\$)			
Akutan Electric Utility	146	10	1,732,487	181,453	\$596,325	\$3.29	1,800,172	Not Available
Alaska Village Electric Cooperative								Not Available
New Stuyahok	123	10	1,139,029	87,967	\$266,826	\$3.03	1,206,029	Not Available
Old Harbor	102	11	667,214	54,132	\$138,471	\$2.56	729,441	Not Available
Togiak	279	16	2,421,765	178,398	\$507,715	\$2.85	2,559,306	Not Available
Alutiiq Power Company								Not Available
Karluk	14	2	201,052	16,245	\$35,414	\$2.18	189,894	Not Available
Andreanof Electric Corporation								Not Available
Atka	28	2	314,426	57,483	\$279,062	\$4.85	404,665	Not Available
Chignik Electric	49	11	529,938	66,378	\$177,861	\$2.68	584,718	Not Available
Chignik Lagoon Power Utility	65	11	491,104	47,370	\$137,453	\$2.90	540,361	Not Available
Chignik Lake Electric Utility, Inc.	39	6	257,044	*	*	*	*	Not Available
Egegik Light and Power	71	21	606,942	65,775	\$210,580	\$3.20	714,595	Not Available
Elkwok Electric	52	8	431,228	35,473	\$105,048	\$2.96	136,740	Not Available
False Pass Electric Association**	28	9	173,061	21,317	\$52,900	\$2.48	247,784	Not Available
G & K								
Cold Bay	34	4	2,547,653	212,996	\$797,343	\$3.74	2,697,600	Not Available
Igiugig Electric Company	18	11	190,153	20,524	\$84,243	\$4.10	220,728	Not Available
I-N-N Electric Cooperative (Iliamna, Newhalen, Nondalton)	202	16	2,534,491	42,686	\$100,297	\$2.35	528,966	2,873,124***
City of King Cove	184	28	3,389,031	157,496	\$374,139	\$2.38	2,167,955	2,207,180***
Kokhanok Village Council	50	10	429,494	41,129	\$173,552	\$4.22	505,141	Not Available
Koliganek Village Council	68	9	529,779	47,239	\$190,326	\$4.03	50,520****	Not Available

*Calculations cannot be made due to lack of data or other circumstances.

**Utility reported 7 months of data.

***All kWhs generated non-diesel were generated by hydro.

****3 months of data reported.

Source: AEA

Table 8.8.B: Comparative Power Generation and Consumption by Borough or Census Area

Utility/Community	Average PCE Payment per Eligible kWh (Cents)	Total kWh Sold vs. Total kWh Generated Purchased (%)	kWh Generated with Diesel per Gallon of Fuel Used (kWh/gal)	PCE Rate (cents/kWh)	Effective Residential Rate (Cents/kWh)
Akutan Electric Utility	20.3	90.1%	11.27	18.07	14.23
Alaska Village Electric Cooperative					
New Stuyahok	34.9	94.4%	13.71	31.48	23.82
Old Harbor	35.2	91.5%	13.48	32.57	24.03
Togiak	30.2	94.6%	14.35	30.73	23.69
Alutiiq Power Company					
Karluk	37.7	*	11.69	34.25	25.75
Andreanof Electric Corporation					
Atka	27.1	77.7%	7.04	23.94	31.26
Chignik Electric	30.7	90.6%	8.81	29.42	17.38
Chignik Lagoon Power Utility	22.4	90.9%	11.41	19.58	14.42
Chignik Lake Electric Utility, Inc.	38.6	*	*	34.24	23.92
Egegik Light and Power	37.8	84.9%	10.86	33.51	31.2
Ekwok Electric	35.6	*	*	33.66	21.34
False Pass Electric Association**	22.8	69.8%	11.62	24.17	26.83
G & K					
Cold Bay	38.1	94.4%	12.67	33.51	22.15
Igiugig Electric Company	35.6	86.1%	10.75	34.25	26.05
I-N-N Electric Cooperative (Iliamna, Newhalen, Nondalton)	29.9	74.5%	12.39	28.84	16.16
City of King Cove	7.9	77.5%	13.77	7.12	16.88
Kokhanok Village Council	39.3	85.0%	12.28	34.25	25.75
Koliganek Village Council	37	*	*	33.82	16.18

*Calculations cannot be made due to lack of data or other circumstances.

**Utility reported 7 months of data

Source: AEA

Table 8.8.C: Comparative Power Generation and Consumption by Borough or Census Area

Utility/Community	Number of Customers		Total kWh Sold (kWh)	Total Fuel Used (diesel)		Average Price of Fuel (\$/gal)	Total kWh Generated Diesel (kWh)	Total kWh Generated Non-diesel (kWh)
	Residential	Community Facilities		Gallons	Cost (\$)			
Larsen Bay Utility Company	55	10	614,331	30,407	\$82,181	\$2.70	300,692	445,584***
Levelock Electric Cooperative	32	7	340,002	37,351	\$129,180	\$3.46	380,215	Not Available
Manokotak Power Company	126	6	1,150,053	66,295	\$51,657	*	1,067,400	Not Available
Naknek Electric Assodation								
Naknek/South Naknek/King Salmon	624	37	19,713,007	1,537,298	\$3,668,509	\$2.39	22,203,563	Not Available
Nelson Lagoon Electric Cooperative	47	10	390,465	34,087	\$105,741	\$3.10	754,313	Not Available
Nushagak Electric Cooperative								
Dillingham/Aleknagik	950	46	17,488,350	1,221,084	\$2,936,636	\$2.40	19,081,200	Not Available
City of Ouzinkie	76	4	672,241	41,608	\$115,484	\$2.78	486,927	270,850***
Pedro Bay Village Council	24	4	232,120	19,238	\$77,833	\$4.05	265,379	Not Available
Pilot Point Electrical	44	10	326,014	36,337	\$151,903	\$4.18	368,880	11,036**
City of Port Heiden****	36	4	299,908	25,669	\$107,810	\$4.20	318,628	7,396***
Sand Point Electric Company	290	26	3,966,836	304,671	\$986,672	\$3.24	4,212,600	Not Available
St. Paul Municipal Electrical Utility	154	31	5,312,195	446,870	\$1,293,065	\$2.89	6,099,979	Not Available
Tanalian Electric Cooperative								
Port Alsworth	51	0	564,428	56,082	\$226,863	\$4.05	623,387	Not Available
Twin Hills Village Council	26	5	161,049	32,640	\$128,532	\$3.94	224,600	Not Available
Umnak Power Company								
Nikolski	16	6	210,956	23,693	\$78,800	\$3.33	252,641	Not Available
Unalaska Electric Utility	685	55	35,324,687	2,441,910	\$5,787,536	\$2.37	34,819,459	Not Available

*Calculations cannot be made due to lack of data or other circumstances.

**All kWhs generated non-diesel were generated by wind.

***All kWhs generated non-diesel were generated by hydro.

****Utility reported 6 months of data.

Source: AEA

Table 8.8.D: Comparative Power Generation and Consumption by Borough or Census Area

Utility/Community	Average PCE Payment per Eligible kWh (Cents)	Total kWh Sold vs. Total kWh Generated Purchased (%)	kWh Generated with Diesel per Gallon of Fuel Used (kWh/gal)	PCE Rate (cents/kWh)	Effective Residential Rate (Cents/kWh)
Larsen Bay Utility Company	20.8	82.3%	9.89	14.15	25.85
Levelock Electric Cooperative	32.4	89.4%	10.18	31.14	18.86
Manokotak Power Company	21.5	*	*	19.58	14.42
Naknek Electric Association					
Naknek/South Naknek/King Salmon	19.3	88.8%	14.44	19.19	14.37
Nelson Lagoon Electric Cooperative	30.7	51.8%	22.13	26.70	25.30
Nushagak Electric Cooperative					
Dillingham/Aleknagik	19.1	91.7%	15.63	17.69	14.19
City of Ouzinkie	17.4	88.7%	11.70	15.03	17.52
Pedro Bay Village Council	38.8	87.5%	13.79	34.25	25.75
Pilot Point Electrical	24.9	85.8%	10.15	28.08	21.92
City of Port Heiden**	19.7	92.0%	12.41	19.72	20.28
Sand Point Electric Company	29.7	94.2%	13.83	26.94	20.84
St. Paul Municipal Electrical Utility	24.4	87.1%	13.65	22.08	18.92
Tanalian Electric Cooperative					
Port Alsworth	37.5	90.5%	11.12	33.29	27.08
Twin Hills Village Council	35.9	71.7%	6.88	34.24	20.76
Umnak Power Company					
Nikolski	34.2	*	*	33.82	16.18
Unalaska Electric Utility	11.2	90.4%	14.26	10.07	23.79

*Calculations cannot be made due to lack of data or other circumstances.

**Utility reported 6 months of data.

Source: AEA

Endnotes

¹ Southwest Alaska Transportation Plan, Final Edition, Alaska Department of Transportation & Public Facilities, November 2002.

and

Southwest Alaska Transportation Plan, Revised, Alaska Department of Transportation & Public Facilities, September 2004.

² IBID

³ IBID

⁴ IBID

⁵ IBID and Alaska Community Database, Community Information Summaries (CIS), and State of Alaska, Capital Projects Database

⁶ Alaska Economic Information System, Alaska Department of Community and Economic Development,

http://www.dced.state.ak.us/cbd/AEIS/AEIS_Home.htm

⁷ Southwest Alaska Transportation Plan, Final Edition, Alaska Department of Transportation & Public Facilities, November 2002.

and

Southwest Alaska Transportation Plan, Revised, Alaska Department of Transportation & Public Facilities, September 2004.

⁸ IBID

⁹ IBID

¹⁰ Kizzia, Tom. "Izembek road plan back before Congress." Anchorage Daily News, September 21, 2008.

and

http://www.alutianseast.org/index.asp?Type=B_BASIC&SEC={69D7E7A2-4744-47E5-9588-FDE043E4BF26}

¹¹ Alaska Administrative Code (AAC), 18 AAC 80, 70,72, and Regulation Code of Federal Regulations (CFR) 40 CFR 141, 143, 122

¹²

<http://www.state.ak.us/local/akpages/ENV.CO NSERV/ home.htm>

¹³ The Updated Plain English Guide to Alaska Drinking Water and Wastewater Regulations, State of Alaska Department of Community and Economic Development, Department of Environmental Conservation, June 2002.

<http://www.commerce.state.ak.us/dca/ruba/pub/RevisedPEGuide.pdf>

¹⁴ Personal correspondence with Trevor Fairbanks of the Alaska Department of Environmental Conservation

¹⁵ The Updated Plain English Guide to Alaska Drinking Water and Wastewater Regulations, State of Alaska Department of Community and Economic Development, Department of Environmental Conservation, June 2002.

¹⁶ State of Alaska, Division of Water, Remote Maintenance Worker Program. "2009 RMW Directory."

<http://dec.alaska.gov/water/rmw/index.htm>

¹⁷ The Updated Plain English Guide to Alaska Drinking Water and Wastewater Regulations, State of Alaska Department of Community and Economic Development, Department of Environmental Conservation, June 2002.

¹⁸ Telecommunications Services Inventory of Rural Alaska, Final Database and Report, Prepared for The Denali Commission, January 2001.

¹⁹ <http://www.acsalaska.com>

²⁰ <http://www.bristolbay.com>

²¹ <http://www.gci.com>

²² <http://www.telalaska.com/about/history.aspx>

²³ <http://www.nushtel.com/>

²⁴ http://www.unicom-alaska.com/index.php?option=com_content&task=view&id=127&Itemid=181

²⁵

http://www.lifeline.gov/lifeline_Consumers.html

²⁶ <http://www.bristolbay.com/lifeline.html>

²⁷ Telecommunications Services Inventory of Rural Alaska, Final Database and Report, Prepared for The Denali Commission, January 2001.

²⁸ IBID

²⁹ www.acsalaska.com
www.wireless.att.com

www.akdigital.com

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<http://www.gci.com/forhome/cellular/Rural+Alaska+Wireless+Coverage.htm>

³¹ Telecommunications Services Inventory of Rural Alaska, Final Database and Report, Prepared for The Denali Commission, January 2001.

32

http://rca.alaska.gov/RCAWeb/Documents/Broadband/Internet_connectivity-070112.pdf

^{33A} Bluemink, Elizabeth. "Alaska villages to get high-speed Internet." Anchorage Daily News. December 19, 2009.

^{33B} <http://www.northernfiberlink.info/>

³⁴ Lind, Sharon. "Alaska receives \$1.9M to Map State's Broadband Availability." Denali Commission. November 30, 2009.

³⁵ Telecommunications Services Inventory of Rural Alaska, Final Database and Report, Prepared for The Denali Commission, January 2001.

³⁶ IBID

³⁷ IBID

³⁸ IBID

³⁹ Alaska Department of Commerce, Community and Economic Development. Community Database Online.

http://www.commerce.state.ak.us/dca/commdb/CF_BLOCK.cfm

⁴⁰ <http://www.akenergyauthority.org>