

Napaimute Community Plan



Prepared for: Native Village of Napaimute
Prepared by: ASCG Incorporated

June 2004

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Executive Summary

Napaimute Vision



Restore Napaimute to a vital, sustainable community that provides a home for our people and preserves our cultural heritage.

Our vision, as the people of the Native Village of Napaimute, is to restore Napaimute to a vital, sustainable community that provides access, facilities and services for year round residents while preserving traditional values that make us who we are. The purpose of the plan is to lay the groundwork and provide information to assist us as we work together to reestablish our community. The plan includes information about Napaimute and its history, an inventory of existing facilities, our goals and objectives and our development priorities.

These four goals summarize our strategy to achieve our vision for the community:

1. **To obtain a land base to develop a community.**
2. **To develop a planned, sustainable community with the basic infrastructure needed.**
3. **To establish a variety of economic development projects to sustain Napaimute's economy.**
4. **To preserve our taproot, the traditional values that make us who we are.**

The immediate community priorities we have established to reach our goals include:

- **Land base** – Formalize the land base in order to proceed with reestablishing the community.
- **Airport** – Develop safe, year-round air access.
- **Homesite development** – Designate land and form a plan for homesite development.
- **Economic development** – Explore and develop year-round opportunities for income.
- **Communication** – Acquire reliable modern communication technology
- **Sanitation** – Establish and maintain safe, healthful water, wastewater and solid waste management.
- **Power** – Provide constant, reliable power. Alternative energy should be incorporated whenever feasible.
- **Multipurpose facility** – Construct a multipurpose building to accommodate essential services during initial community development.

Long-range projects include development of a school, post office, improved landfill, and road system.

In this Community Plan, we have presented our history, which is our foundation; our present resources, which are the tools we will use to build; and our vision for Napaimute, which is our future.

Introduction

Napaimute is located in Western Alaska on the north bank of the Kuskokwim River; 28 miles east of Aniak at the foot of the Kuskokwim Mountains (see Figure 1). Once a community of over a hundred, by the 1960s its year-round residents had moved on primarily due to lack of economic opportunities. Although residing elsewhere, 39 original members enrolled as Napaimute Tribal members. Today, with the addition of their descendents, the Tribe has more than doubled and there is an active effort to revitalize Napaimute and provide a place for Tribal members to return.

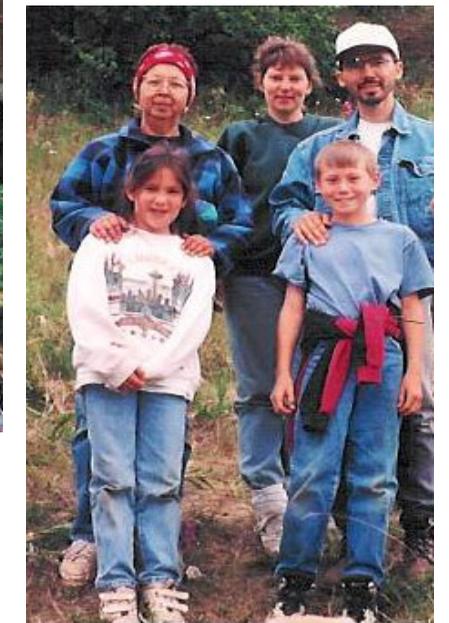
Revitalization

New developments in technology, upcoming large-scale economic development in the region, and the increased potential for tourism in the Middle Kuskokwim combine to make the reestablishment of Napaimute as a permanent Alaskan community a real possibility. The revitalization began in earnest in 1969. Bit by bit, members cleaned up the site, removing old trash, tearing down buildings too dilapidated to save, cutting decades worth of grass and willows, leveling the ground, and filling holes. Many tons of supplies and equipment have been hauled to Napaimute by barge, boat, snow machine, plane, and even by truck. On this reclaimed land, several families (tribal and non-tribal) have built permanent homes, planted gardens, and set up smoke houses and steambaths. The U.S. Census 2000 listed 16 permanent, seasonally occupied residences for Napaimute. With the revitalization of the community, its members have become more interested in its future. Today, the Tribe has more than doubled and the dreams of the original members are becoming a reality. More and more people have expressed the desire to call Napaimute home, to improve their quality of life and to live a more traditional lifestyle.

In 2003, the Native Village of Napaimute received funding from the Administration of Native Americans to develop a community master plan that could lay the groundwork for that revitalization effort. To assist them, the Tribe hired ASCG Incorporated to work together to write a planning document that would outline the history and background of the community, identify the existing conditions, develop goals and objectives and prioritize projects. The Tribe also wanted the plan to provide additional development details or a "how to" guide for reestablishing Napaimute.

The Yup'ik word "Napaimute" means People of the Forest

The time to plan is now. That's the intended purpose of this document to pull it all together: past, present, and future.



Napaimute faces

Figure 1
Location of
Napaimute, Alaska

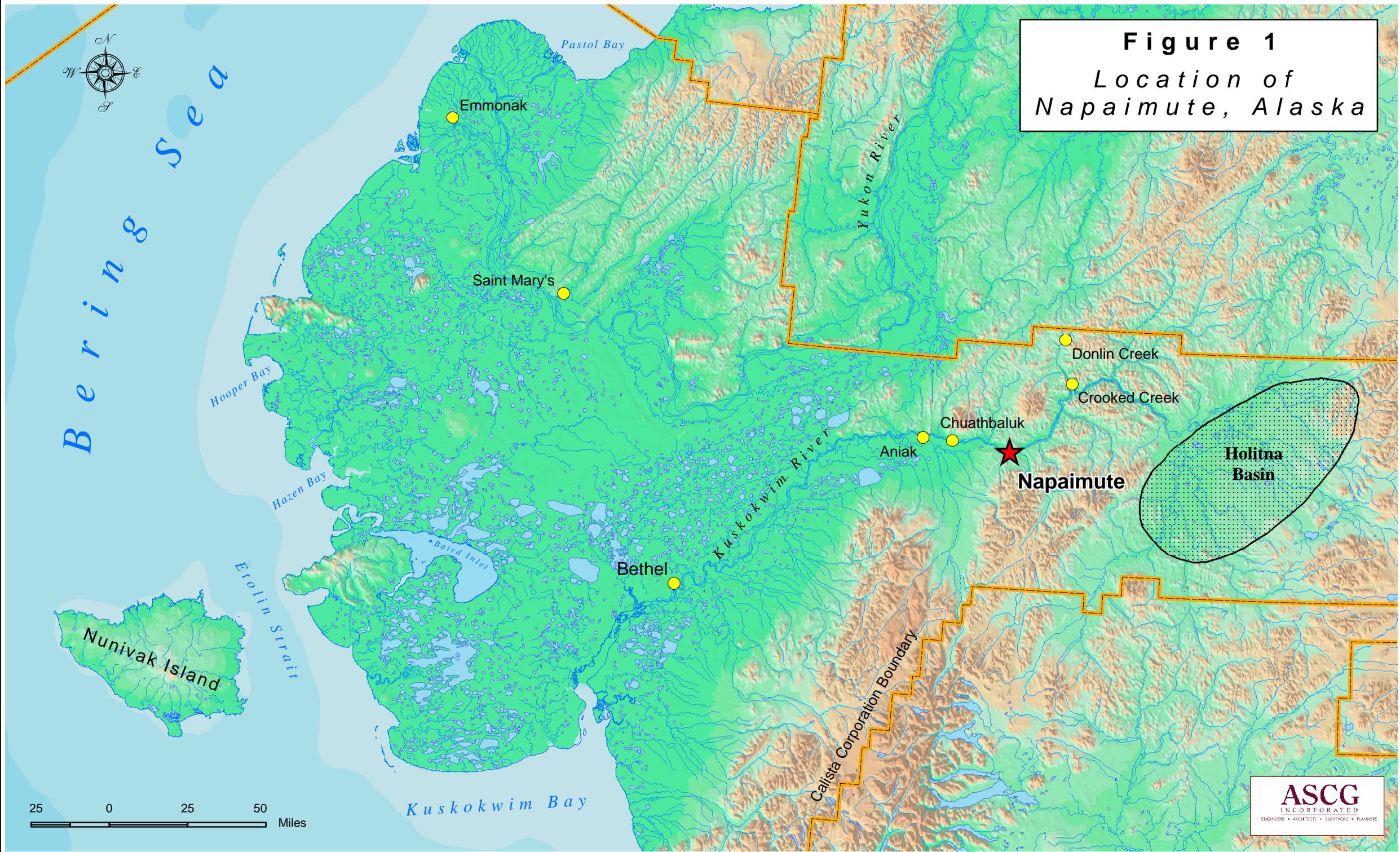
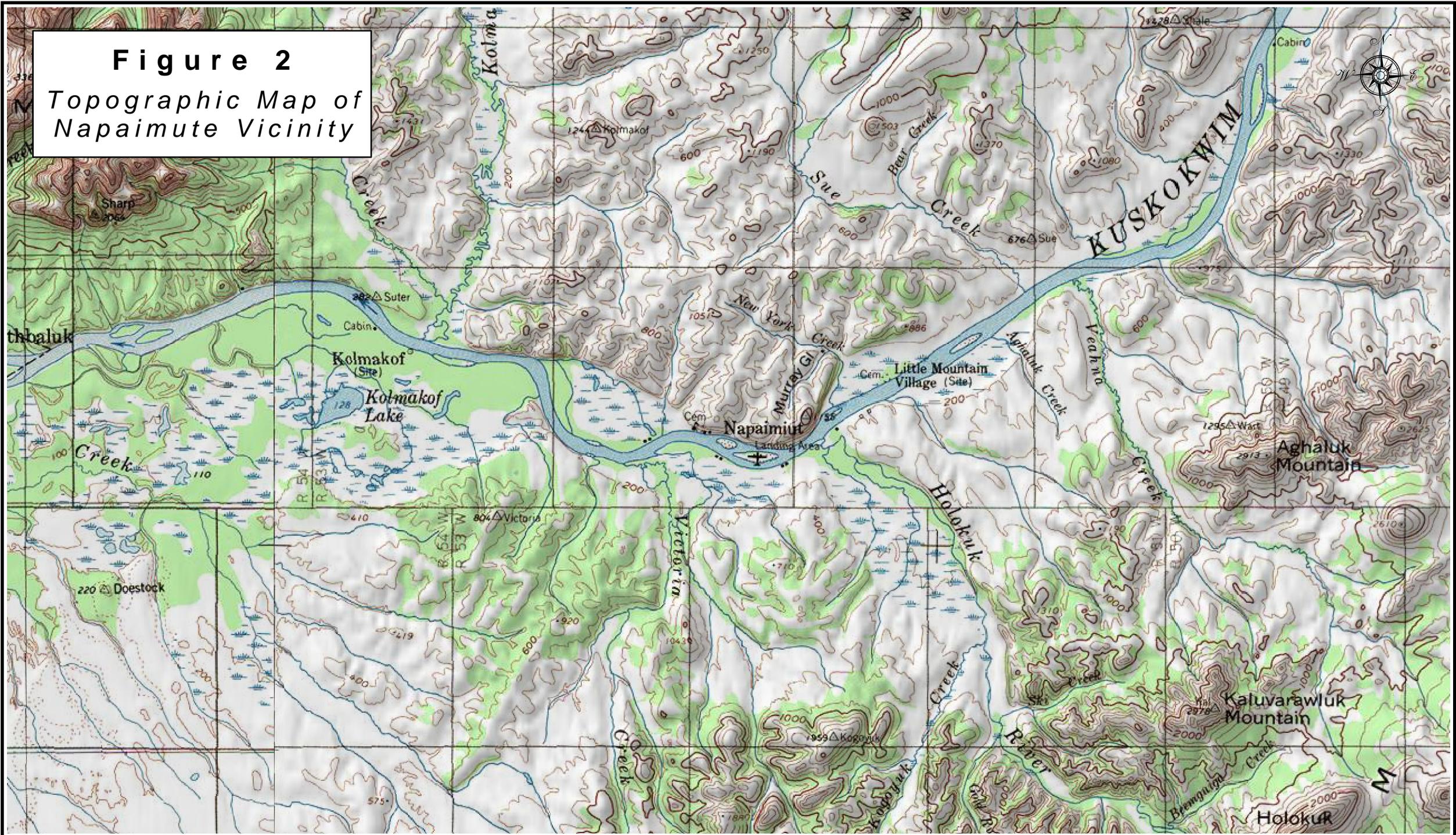
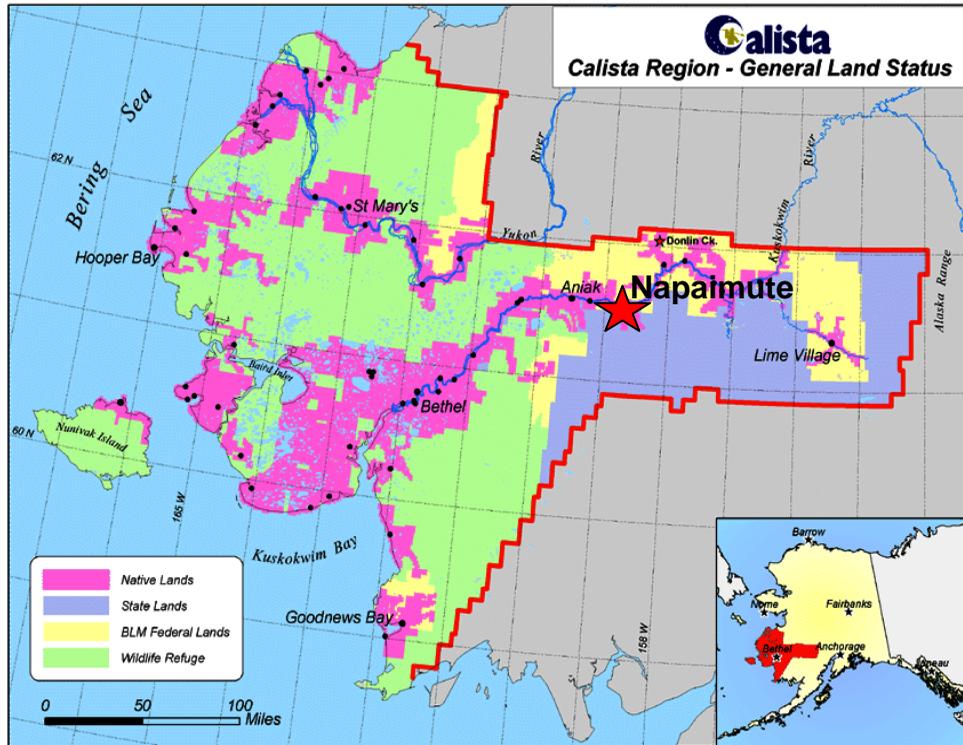


Figure 2
*Topographic Map of
Napaimute Vicinity*





Land

Under the 1971 Alaska Native Claims Settlement Act (ANCSA), a village corporation was formed for Napaimute Tribal members called Napaimute Limited with ownership to the surface estate of 69,120 acres in and around the traditional village. The subsurface estate in the region belongs to Calista. Founded in 1972, Calista Corporation is the second largest of the 13 regional corporations formed under ANCSA in 1971. It is a business corporation formed under state and federal laws, including the settlement act and its amendments.

Community	Distance from Napaimute (Air miles)
Aniak	28
Anchorage	290
Bethel	115
Crooked Creek	30
Donlin Creek Mine	40

In 1977, Napaimute Limited merged its assets with nine other middle Kuskokwim villages (Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, Napaimute, Crooked Creek, Georgetown, Red Devil, Sleetmute, and Stony River) to form the Kuskokwim Corporation (TKC). This was allowed by amendments to the Alaska Native Claims Settlement Act. TKC lands are illustrated in Figure 3. Under section 14(c)(3) of ANCSA, TKC was then obligated to reconvey no less than 1,280 acres to the city governments of each of its 10 member villages to be used for community purposes, including community expansion. A lesser amount of acreage could be reconveyed if all parties involved agreed in writing. In villages where no city government exists, the lands reconveyed under 14(c)(3) go to the State of Alaska to be held in trust for the future city.

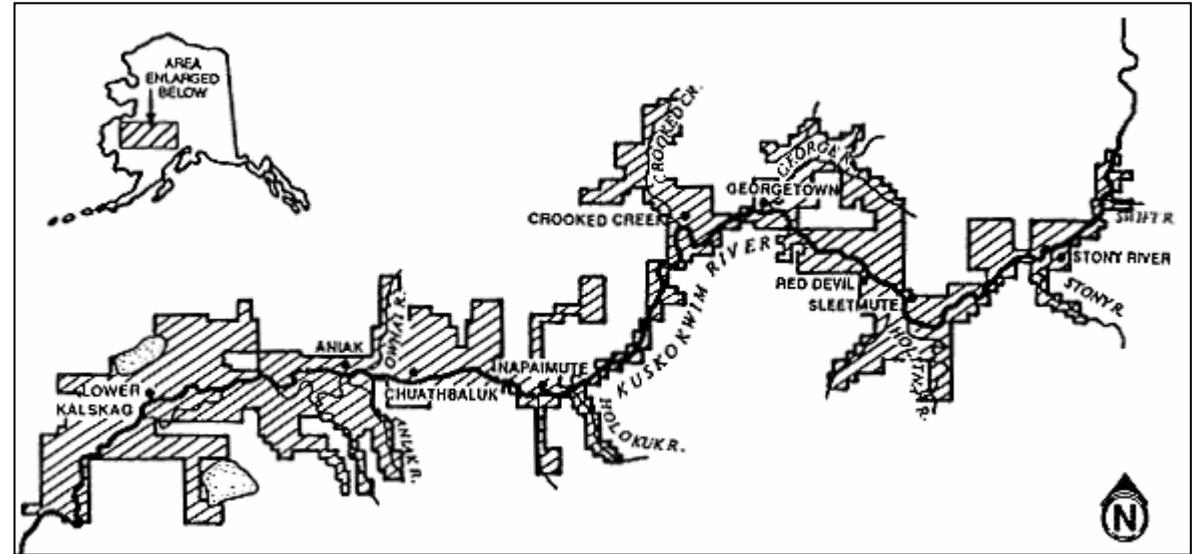


Figure 3 The Kuskokwim Corporation land holdings

In the 25 years since TKC was formed, the original Napaimute members and their descendants who remained in the region continued to work toward resettling the village.

The Native Village of Napaimute received federal recognition as one of Alaska's 229 Native Tribes in 1994 after key members, at considerable personal expense, gathered historical evidence to prove that Napaimute was once a thriving community with a distinct group of tribal people. It was this federal status that qualified the Native Village of Napaimute to receive funding through the Bureau of Indian Affairs (BIA) Tribal Priority Allocation Program. This small grant allowed the Napaimute Traditional Council to conduct regular tribal operations and begin pursuit of their top priority - obtaining a land base to be used to reestablish the Village.



Building restoration

For three years, the Council worked to identify land suitable for building a community and doing preliminary planning for its use. The Napaimute Traditional Council applied for and received "Appropriate Village Entity" (AVE) status from the State of Alaska and entered into 14(c)(3) negotiations with TKC for the

reconveyance of 650 acres to the Native Village of Napaimute. Because Napaimute has no municipal government (like many rural Alaskan villages) the land selected would go to the State to be held in trust. This fact, with its potential for loss of local control, was of great concern to the Traditional Council and much time was invested researching alternatives to the ANCSA 14(c)(3) reconveyance process. (See Appendix A for a copy of ANCSA land conveyance regulations.)



The goal of the Traditional Council was and remains to obtain land and to plan and develop a community for its members who want to return home and seeking to establish a residence in Napaimute.

In April 2003, a proposal requesting a direct transfer in lieu of a 14(c)(3) settlement was submitted to TKC. TKC has recognized that the tracts selected will be for the community of Napaimute in one form or another but they have yet to make a determination regarding the proposal. This recognition was made through an interim lease on all 650 acres in October 2003. The lease from TKC gives site control to the Native Village of Napaimute and allows the Traditional Council to move forward with planning and development. The lease sets a timeframe of 24 months in which Napaimute land selections will be reconveyed to the tribe through a direct transfer, 14(c)(3), or a combination of both.



The time to plan is now. That's the intended purpose of this document- to pull it all together: past, present, and future. There is a need to reach back and demonstrate the strength of Napaimute's past, to organize our course for the present, and to break a trail for the future planning of a beautiful place called - **NAPAIMUTE**.

Cleaning up the Village and Tribal Building installation

Community Data



*Agnes Charles –
First Traditional Chief,
Native Village of Napaimute
November 1, 1910 – December
29, 2002*



*Many return to Napaimute for funerals
or other major events*



Although several hundred or more people can trace their roots to Napaimute, it was just a handful who continued to maintain ties to the village once its western-style economy ceased. These few identified themselves so strongly with their ancestral home that they worked hard to receive federal recognition as one of the Alaska's Native Tribes.

There were 39 original members who enrolled in Napaimute. Today, with the addition of their descendents, the Tribe has more than doubled.

Napaimute History

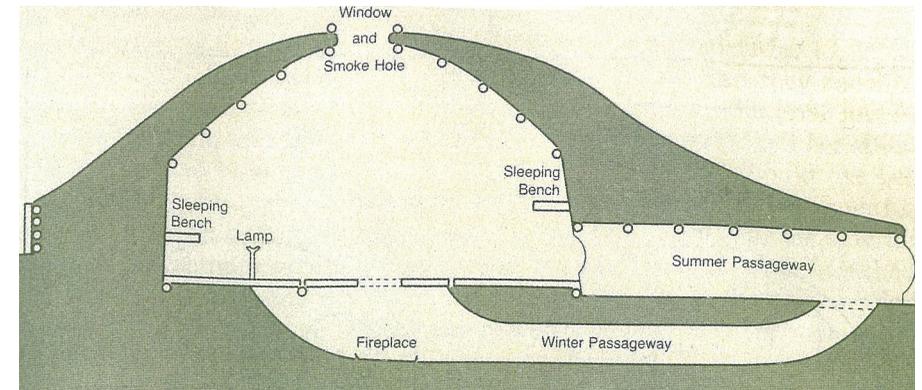
The Yup'iks that once lived in the vicinity of present day Napaimute were known as the Kiatagmiut, or Upriver People. This culturally rich and adaptable Yup'ik sub group lived in a string of stable settlements from Bethel to just upriver of Napaimute, a distance of about 170 miles. Because of their spread out location, they were equally at home among spruce forested riverbanks and tundra country and were arguably one of the most adaptable Aboriginal groups in the area. East of the Kiatagmiut, lived Indian groups represented by the Georgetown Ingalik subgroup who inhabited the upper reaches of the river and the adjacent inland area.

The ancestors of the Upriver People had lived for thousands of years along the Bering Sea coast of western Alaska and in comparatively recent times had pushed inland. The Kiatagmiut numbered from 3,000 to 7,000 at the time of Western contact and maintained a salmon-based economy with an abundant, easily obtainable supply of food and raw materials. Their villages were small, with an average of around 120 inhabitants and while they migrated seasonally, generally they had strong attachments to their home villages. (Oswalt, *Bashful No Longer*, p. 17)

A typical village included about seven houses occupied by closely related females and their young male offspring. The older boys and the men usually lived in the men's house (*qasgiq*), the largest structure in a village. The *qasgiq* also served as a bathhouse, workshop and setting for religious ceremonies or social activities. The houses and *qasgiq* were well-built, square or rectangular log-framed and sod-covered structures. The *qasgiq* often remained occupied for generations. (Oswalt, *Komakovskiy Redoubt*, p. 4-6)

In 1830, several Russian explorers, using Yup'ik guides, traveled up the Nushagak River, along the Holitina River to the Kuskokwim. The purpose of their expedition was to examine the viability of expanding the Russian American Company's fur trading business into this area. They sent back favorable reports and in 1832, the Russians returned to set up a "winter hut" near present day Sleetmute. This site, known as Kolmokavs Odinochka, proved to generate minimal trade primarily because the population was small and scattered. The next year the Russians built a second trading station at the village of Kwigumpainukamiut, located downriver from Kolmokavs Odinochka, at the junction of the Kuskokwim and the Kolmakov (Kwik) rivers, about nine miles west of present day Napaimute. The Russians brought western trade goods that they exchanged for fur such as beaver, otter, lynx and fox. In addition to introducing western trade goods to the local populations, the Russians brought deadly diseases. In 1838, despite Russian attempts to vaccinate the local populations, residents in the central Kuskokwim area were hit hard by a small pox epidemic. This disease devastated the local inhabitants, killing an estimated 60% of the Yup'iks living in the upriver communities.

In 1841, the Russians built a year-round round trading post on a spruce-covered plot across the river and slightly downstream from the station at Kwigimupainukamiut. This trading post, known as Kolmakovsky Redoubt was named after Fedor Kolmokav a Russian American Company employee who helped to develop the regional trade. This was the first permanent Russian settlement on the Kuskokwim and included a store, warehouse, Russian Orthodox Church, Creole (mixed Russian and Eskimo) and separate Eskimo Barracks, and stockade.



Drawing of a qasgiq, after E. W. Nelson (1899).

In 1844, the first record of Napaimute occurred when Russian ethnographer, Lavrentiy A. Zagoskin boated up river from Kolmakovsky Redoubt to visit the remnants of a Yup'ik settlement. Located downstream from the creek at the lower end of the present day Napaimute, the village was referred to as Kybgakhtuk or "Forest." Other accounts in the late 1880s describe the presence of a few residents in this location but evidence suggests it once contained a larger population that was likely reduced by the 1839 small pox epidemic. In 1900, an influenza epidemic further devastated the populations of Kuskokwim River villages and other villages in Alaska. An estimated 50% of the population died as a result.



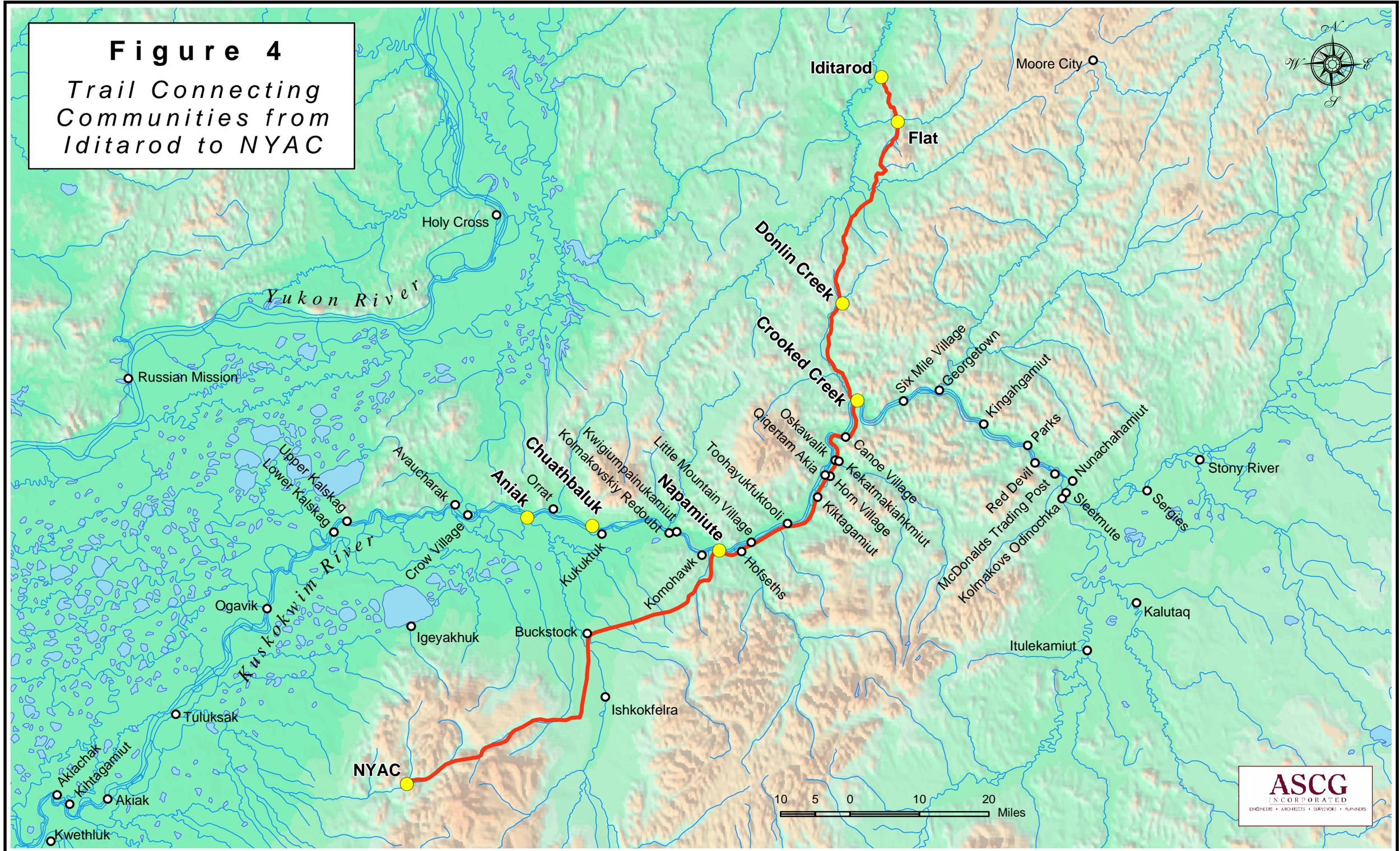
Gold Pan

The next major change that came to the residents of the Napaimute area arrived with the influx of gold miners and traders. Although a few placer miners passed through the Kuskokwim area as early as 1889 (Maddren, 1915, p. 299), it wasn't until 1900, that they began to arrive in earnest. The gold prospectors arrived mainly from Nome, because of a vague rumor of a possible gold find on the "Yellow River", assumed to be a tributary of the Kuskokwim River. By September of that year, several miners reached Bethel and began to move inland. By winter, a small dog-sled dash to find the Yellow River was in progress. This rush became known as the "Yellow River" or "Pete McDonald" Stampede (Maddren, 1915, p. 299). Their first efforts to find the "Yellow River" centered on a creek near the modern settlement of Aniak and later several miners went up the Stony River. Although the "Yellow River" was never found, miners continued to look for gold throughout the Kuskokwim area. In 1906, prospectors searching for gold along the Innoko River drainage of the Yukon finally recovered enough gold to stake a discovery claim on nearby Ganes Creek. Soon, more than eight hundred people arrived from Fairbanks and several hundred more arrived from Nome into the Upper Kuskokwim and Iditarod area. Latecomers located claims on nearly every creek in the mountains of the Upper Innoko. A trail was established from Iditarod and Flat to Crooked Creek and south southwest passing through Napaimute and overland to NYAC. See Figure 4 on the following page.

As the gold fields of the Iditarod began to play out, miners spread throughout the region looking for new prospects. The Kilbuck Mountains to the southwest of Napaimute began to develop significant gold mining activity. In 1906, George Hoffman established a trading post located at the present day Napaimute. Napaimute became an important supply and trade center for the central Kuskokwim River area. It was the midpoint between the gold fields of the Iditarod and the Kilbuck Mountains.

In 1910, placer miners discovered gold at New York Creek mine three miles northeast of Napaimute. There, miners concentrated their efforts in Murray Gulch, a short right-side tributary to New York Creek along the lower three-fourths of a mile and near the mouth of this gulch. Three 20-acre placer claims were established; one at the mouth of the stream and two above it. Most of the prospecting on Murray Gulch was done by sinking shafts into bedrock. A small prospecting boiler was also used to thaw the frozen ground with steam and bench trenches were dug at right angles to the direction of the valley for ground-slucing.

Figure 4
*Trail Connecting
 Communities from
 Iditarod to NYAC*



While the gold mining diminished in the early 1900s, George Hoffman and his family continued to live in Napaimute for many years. In 1920 he helped to build the first territorial school along the Kuskokwim. The school had 30 pupils, 12 of which were the children of George Hoffman and his wife.

The U.S. Census indicated that the 1930 population of Napaimute was 111. In 1932, George Hoffman died. His trading post was sold several times but with the decline of the mining, fur, and also reindeer industry that had been introduced by Sheldon Jackson, the store eventually closed and the village population began to dwindle. Many residents migrated downriver to either Aniak or Bethel where government agencies were beginning to create more stable job opportunities. By 1950 the U.S. Census reported the population was 24 and in 1969, Mrs. Alta Brink, a former Napaimute school teacher, became the last permanent resident to move out of the village.

Although no longer living in Napaimute, the remaining descendents continued to identify strongly with their ancestral home. So much so, that in the 1970s, they fought for and received federal recognition as one of the Alaska's Native Tribes. This federal status has enabled the Native Village of Napaimute to survive, awaiting the day when its members would return home. There were 39 original members who enrolled in Napaimute. Today, with the addition of their descendents the Tribe has more than doubled and with the hard work of Tribal members, the dreams of reestablishing Napaimute once again as a thriving community is becoming a reality.



In front of the Napaimute School



The house of George Hoffman was built in Napaimute in 1906, with hand-hewn logs and nails by Russian craftsmen who came to the region to build Russian Orthodox Churches. The house was purchased by granddaughter Delores Hoffman Matter and with her husband Joe, the structure was taken apart piece by piece and reconstructed to repair the flood damaged foundation. The home is stated to be the oldest habitable house on the Kuskokwim River.

Historic Preservation

Napaimute is rich in history. As of yet, no structures or sites in Napaimute have been registered on the National Register of Historic Places, but the Traditional Council intends to begin to register Napaimute's historical assets in the near future. It is unlikely that developments in Napaimute will impact historical properties in the new community location, but may in the present Napaimute site. Further coordination with the State Historical Preservation Office will be necessary to confirm this once a specific project location is identified.

George Hoffman House. The George Hoffman House, built in Napaimute in 1906, is said to be the oldest "habitable" house on the Kuskokwim River. (See photo at right) It was constructed of hand-hewn logs and nails by a Russian craftsman who built Russian Orthodox Churches in the region during that time. It was later purchased by George Hoffman's granddaughter and reconstructed to repair flood damage to the foundation.



Photo by J.A.H. Hartmann

Kolmakovsky Redoubt, 1884

Kolmakovsky Redoubt. Located nine miles west of Napaimute across the mouth of Kolmakov River on the south side of the Kuskokwim River is the historic Russian trading post built in 1841. The trading post is listed on the National Register of Historic Places (NHR) and was occupied by the Russian American Company until 1866 and then by the American Commercial Company until about 1917.

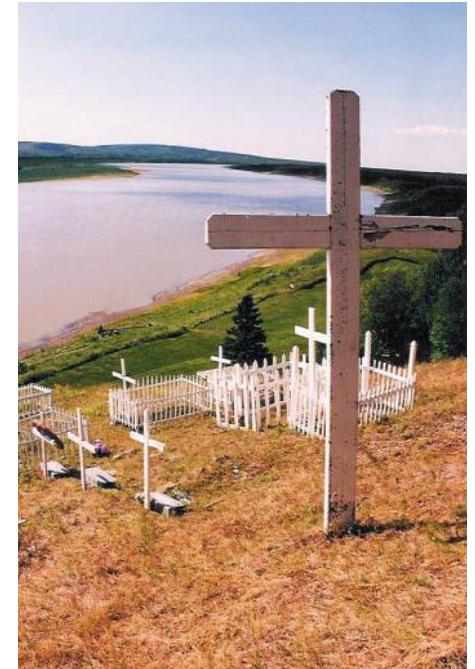
There are two historic sites not listed on the historic register but identified in the *Alaska Heritage Resources Survey*:

- the early historic village of the 1800s, which was located downstream from the existing community, and
- a camping area on the south bank of the Kuskokwim River, opposite modern-day Napaimute.

The Tribe plans to register Napaimute's two cemeteries on the NHR and then apply for funding to preserve them. Both cemeteries are in the vicinity of the original village site.

As a first step towards completing this goal, the Napaimute Traditional Council applied for a Historic Preservation Fund Grant from the National Park Service to conduct a Survey and Inventory of Historic Sites on Tribal Lands.

The following pages present a timeline of significant events that have occurred during the history of Napaimute.



Napaimute graveyard

1910

1920

1930

1940

1950

1960

1970

1980

1990

- < In 1838, a smallpox epidemic reached the Kuskokwim region, reducing the population by an estimated 60%.
- < In 1841, Kolmakovsky Redoubt, a Russian fur-trading outpost, was constructed 9 miles from Napaimute.
- < In 1844, Russian ethnographer, Zagoskin Lavrentiy penned the first known written reference to Napaimute.
- < In 1866, Russians abandoned Kolmakovsky Redoubt.
- ◆ In 1900, an influenza epidemic reduced the population by approximately 50%. Mostly the young survive.
 - ◆ In 1906, George W. Hoffman established trading post at Napaimute.
 - ◆ Around 1920, George W. Hoffman built a territorial school – the first on the Kuskokwim River.
 - ◆ U.S. Census Data indicates that the 1930 population was 111.
 - ◆ In 1932, George W. Hoffman passed away. His trading post changed hands several times in the ensuing years.
 - ◆ Prices for furs and gold dropped due to World War II and most year-round residents moved from Napaimute for economic reasons.



Hoffman family



Children of Napaimute

- ◆ U.S. Census Data indicates that the 1950 population was 24.



Agnes Charles, first Traditional Chief of Napaimute

- ◆ In 1969, Mrs. Alta Brink, former Napaimute School teacher and the last permanent resident of Napaimute, moved away. Napaimute was unoccupied for the first time since 1904.
- ◆ In 1969, Joe and Dee Matter purchased and restored the original George Hoffman house, bringing it back into the family. Dee was George Hoffman's granddaughter.
 - ◆ 1971 passage of Alaska Native Claims Settlement Act established a Village Corporation for Napaimute, Napaimute Limited, with ownership of the surface estate of 69,120 acres in and around the village.
 - ◆ Napaimute joined the Kuskokwim Native Association (KNA).
 - ◆ In 1975, Agnes Charles returned to live full time in Napaimute.
 - ◆ In 1977, Napaimute joined the Kuskokwim Corporation (TKC).
 - ◆ In 1986, the Traditional Council reestablished the Native Village of Napaimute and raised their first funds by holding a bake sale at the Interior Rivers Fair in Aniak.

1990

2000

Present

- ◆ In 1991, a 12-acre settlement by TKC of an overlaying native allotment within the original village site opened up additional area for settlement by Napaimute tribal members. Three families built homes in the ensuing years.
- ◆ In 1994, Napaimute received recognition as a federally recognized tribe as the result of key members gathering historical evidence at their own expense.
- ◆ In 1996, the Native Village of Napaimute withdrew from KNA and began compacting for services with the Association of Village Council Presidents (AVCP).
- ◆ Office established in Bethel during the winter months with phone, internet, and fax access.
- ◆ Native Village of Napaimute website established.
- ◆ Council held annual Tribal gatherings in the spring.
- ◆ Council is recognized by many organizations throughout the state.
- ◆ Council participated in various bills and action items on topics such as subsistence, migratory birds, and YKHC health problems.
- ◆ Council applied for and was awarded grants.
- ◆ In 2000, emergency medical supplies and construction tools were established in Napaimute in anticipation of the development of the village.



Old Man Archie, Mrs. Archie, Sophie McDonald, Tony McDonald and brother Jack McDonald, Mrs. Archie's grandson Willie and MaryAnn McDonald

- ◆ In 2001, a full time tribal administrator was hired. The administrator worked toward establishing basic infrastructure for tribal operations in Napaimute.
- ◆ In 2001, a sawmill was purchased for the village in support of new development.
- ◆ In 2002, a bulldozer with a backhoe was purchased to support the development of the village and maintain an airstrip on the ice in winter for emergencies.
- ◆ In 2002, Tribal operations began in Napaimute May through October. Internet and satellite phone communications were established.
- ◆ In 2002, a Tribal Fuel/Store Business was established.
- ◆ On December 29, 2002, first traditional chief of Napaimute, Agnes Charles, passed away. Inability to get to Napaimute due to dangerous river conditions, further demonstrated the need for an airfield.
- ◆ October 22, 2003, the Kuskokwim Corporation granted an interim lease of 650 acres to the Native Village of Napaimute to allow for community planning and development
- ◆ March 2004, first phone/fax installed in Napaimute
- ◆ Tribal operations continue in Napaimute with business expansion, the hiring of local employees, a logging project, site preparations for the construction of a multipurpose building and the restoration of the Russian Orthodox graveyard.



Dudley Clark, Bertha Hoffman, Clarence Clark, and Eli Walker on the trail from Napaimute to Nyak

Government

Napaimute, acting through its Traditional Council, is formally recognized by the Alaska Native Claims Settlement Act. It is also listed in the Federal Register, Volume 53, Number 250, dated December 29, 1988, as a Native entity within the State of Alaska, recognized and eligible to receive services from the U.S. Bureau of Indian Affairs.

The Traditional Council is made up of five members elected to staggered terms. Council members include a president, vice president, secretary/treasurer, and two members. Council meetings are held monthly either in person or via teleconference. Elections are held at the annual Tribal Gathering. Additionally, the Council employs a Tribal Administrator to oversee the business of the Tribe.



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Napaimute Council Meeting/Planning workshop, March 2003



Meeting on land issues



Council members being sworn in

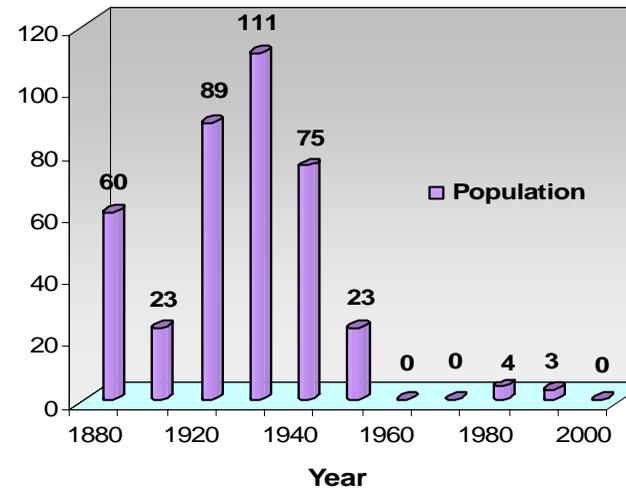
Population and Housing

The population of Napaimute has fluctuated greatly according to the U.S. Census, with the year-round population dropping significantly by the 1950s. The 2000 U.S. Census reported the population of Napaimute as zero, with 16 permanent, seasonal, housing units. In comparison, the Bethel Census Area that Napaimute lies within has shown relatively steady growth over the past decade, approximately 1.6 percent annually. In the period from 1990 to 2000, nearby established communities within the census area showed the following annual percentages of growth: Aniak 0.6 percent; Chuathbaluk 2.1 percent; Crooked Creek 2.6 percent; and Stony River 1.8 percent.

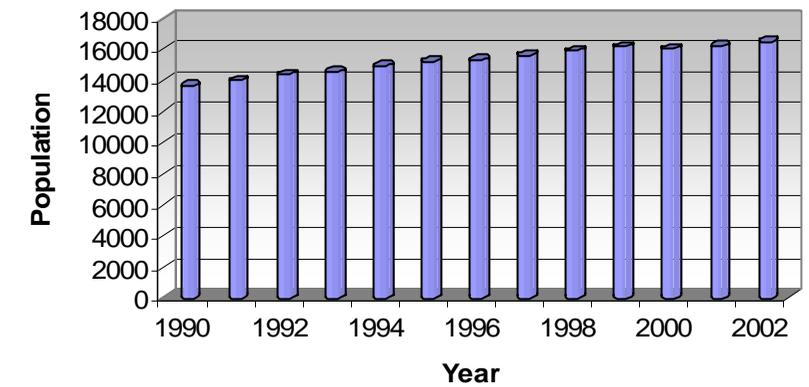
Population increases throughout the region may be indicative of the following trends:

- More people will be traveling in the region; therefore, more services will be required. This is a market that Napaimute can tap into.
- People will be looking for winter recreation, another area of economic development for Napaimute.
- People may be looking for more desirable living locations and may consider moving to Napaimute.

Napaimute Population History



Bethel Census Area Population History



Tribal member with subsistence-caught King Salmon

Environmental Considerations

It is important to consider the environmental impacts when developing new land uses. The following information is intended to assist in the environmental analysis of priority projects.

Wildlife

A wide variety of fish and wildlife are present around Napaimute. The Kuskokwim River supports all five species of salmon in addition to Whitefish and Sheefish. Roughly 2.5 miles east of Napaimute, the Holokuk River supports Sheefish, Whitefish; Pike, Dolly Varden, Arctic Char, Grayling, Red, King, Silver, Pink and Chum Salmon.¹

Napaimute is within a low density waterfowl range. Waterfowl such as mallards, teal, and widgeon ducks along with passerine birds are present.

Moose and caribou are present throughout the area. High concentrations of winter-range caribou are located northeast and south southwest of Napaimute while large numbers of winter-range moose are found all along the river Napaimute² Numerous fur-bearing mammals are also found in this area, including black bear, brown bear, wolf, red fox, ground squirrel, red squirrel, lynx, marten, beaver, muskrat, wolverine, and otter.

Neither the National Marine Fisheries Service nor U.S. Fish and Wildlife Service indicate threatened or endangered species exist in the area around Napaimute. There are no National Wildlife Refuges in the Napaimute region.

Vegetation

The vegetation in the Napaimute area consists of: white and black spruce, different varieties of birch, willow, cottonwood, poplar and tamaracks. Along the river valleys the vegetation is typical of most Northern Boreal Forest, with alpine tundra in the uplands back from the rivers. Large areas of old burns are common.

¹ Alaska Department of Fish and Game Habitat Division (ADF&G), *An Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes*, 1998.

² Department of Community and Economic Development (DCED), *Community Profiles, Yukon Region*, 1976



Salmon is hung for smoking



Moose contribute to the subsistence diet of Napaimute residents

Wild and Scenic River Status

There are no designated Wild and Scenic Rivers near the proposed village area.

Coastal Zone Management

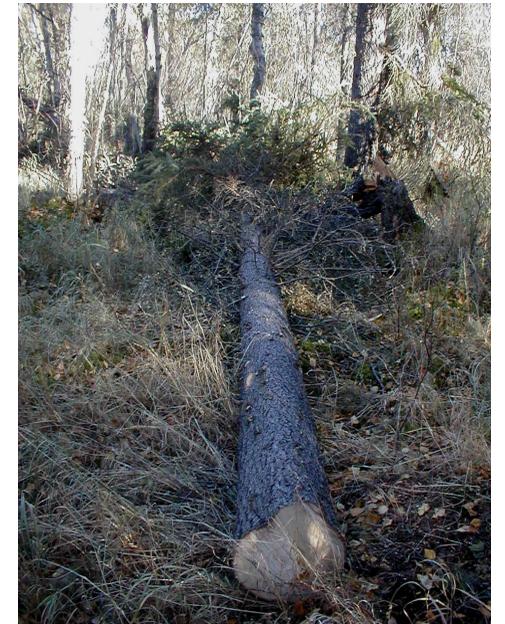
Napaimute is not located within a Coastal Resource Service Area.

Wilderness

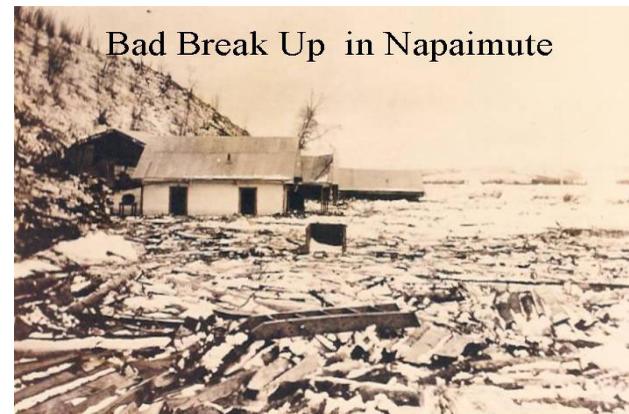
There is no officially-designated wilderness area near Napaimute.

Flood and Wetland Information

According to the U.S. Army Corps of Engineers (COE), there is flooding potential at the "old town site," but they have no historic records of flooding. A COE official stated that a hydraulic model with at least four cross-sections every thousand feet would be required to develop a 100-year floodplain model. Little or no documented floodplain information exists on most of the smaller communities of Alaska including Napaimute. Flood Plain Management Services has an on going program to identify floodplains and to update flood information on all communities. Their goal is to provide a complete, readily available source of floodplain information for every community in the State. For additional information, contact Flood Plain Management Services at (907) 753-2610.



*Above: Along the Kuskokwim River.
Right: Typical forest near Napaimute*



Infrastructure Today

The Land Use Map located on the following page, based on a June 2001 orthophoto, shows the infrastructure in Napaimute that existed at that time. More detail about land use is provided below.

Public Facilities and Services

Napaimute facilities and resources consist of the following:

- Tribal office building with general office services for tribal members including a copier and computer with internet access, phone and fax;
- temporary lodging facilities;
- a new multipurpose building with kitchen, laundry, shower and meeting facilities;
- bulk fuel storage with retail dispensing capabilities;
- emergency medical supplies;
- a wide variety of construction tools and supplies;
- a dozer with a backhoe;
- basic firefighting equipment;
- a sawmill; and
- an equipment garage.



*Above and right:
Heavy equipment and
building materials*



Inside the Tribal Office



Napaimute Tribal Office



*Tools and equipment in storage
container*



*Barge delivering fuel tank for tribal
business*

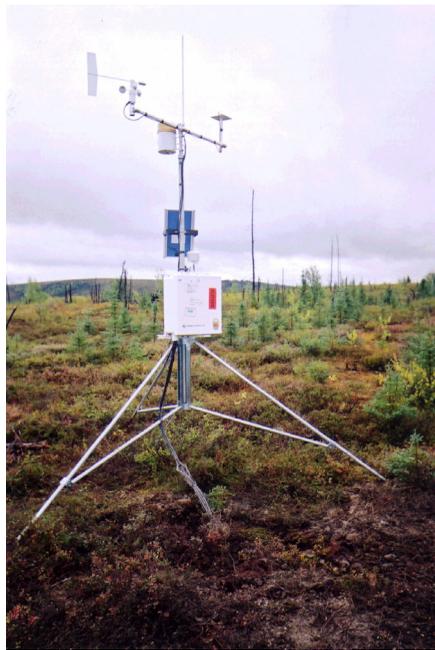




- 1. House
- 2. Old Post Office (Proposed Museum)
- 3. House
- 4. House
- 5. Smoke House
- 6. House
- 7. Shop/Generator House
- 8. Greenhouse
- 9. Cemetery
- 10. House
- 11. House
- 12. Storage/Guest Tent/ Steam Bath
- 13. House
- 14. House
- 15. Smokehouse
- 16. Steam Bath
- 17. House
- 18. Tribal Office
- 19. Old Russian Orthodox Cemetery
- 20. Proposed Power Plant

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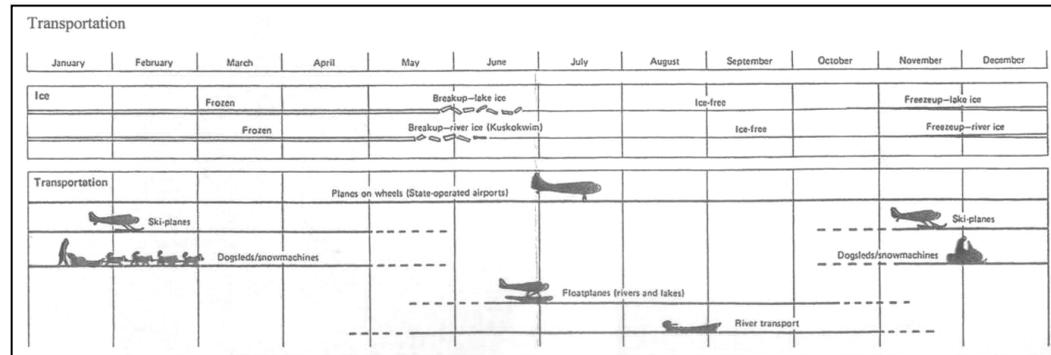
**LAND USE MAP
 NAPAIMUTE, ALASKA
 FIGURE 6**



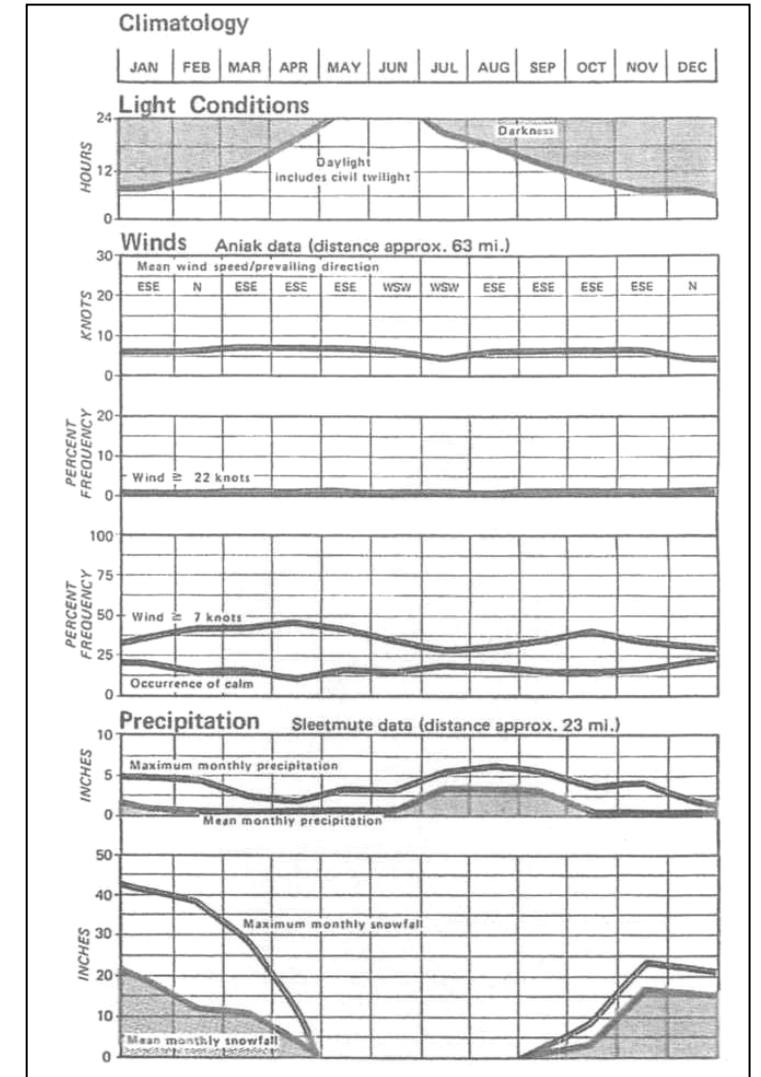
USDA NRCS weather station installed in 2001 at Napaimute

Climate

The weather station at Napaimute collects information about precipitation, air temperature, relative humidity, wind speed and direction, solar radiation, barometric pressure, snow water content, snow depth, soil moisture, and soil temperature. The National Resource Conservation Service's (NRCS) National Soil Survey Center installed the station in 2001. Information from the weather station may be available online at the NRCS's National Water and Climate Center site (<http://www.wcc.nrcs.usda.gov/>) by the end of 2004. Information gathered by the station will assist in accurate planning for infrastructure such as the airport. The more accurate data that is available, the better planning, design and construction can be tailored to meet the specific needs and challenges of Napaimute. The following charts show some of the types of information gathered at this type of weather station.



Climate Data	
Average Maximum Temperature	36.8° F
Average Minimum Temperature	19.7° F
Average Total Precipitation	18.84 inches
Average Total Snowfall	56 inches
Average Snow Depth	6 inches



According to the Environmental Atlas of Alaska, the climate of Napaimute is continental and is typified by great diurnal and annual temperature variations, low precipitation, low cloudiness, low humidity, and light surface winds.³

The Western Regional Climate Center shows the following climate data for Aniak, which lies 28 miles west of Napaimute: The average maximum temperature is listed as 36.8 degrees Fahrenheit (°F) with an average minimum temperature of 19.7°F. The average total precipitation is 18.84 inches with an average total snowfall of 56 inches. The average snow depth is six inches. Data from the Western Regional Climate Center is based on a period of record from 9/1/1949 to 3/31/1990.⁴



Pictures of Napaimute: Winter, spring, summer and autumn



Breakup: Spring 2004

³ University of Alaska Fairbanks, *Environmental Atlas*, 1984

⁴ Western Regional Climate Center, *Aniak, Alaska*, 2003

Soils

Napaimute is immediately adjacent to both the hill slopes of the Kuskokwim Mountains and the floodplain of the Kuskokwim River. Hill slopes are steep north of the river, gentle to moderate south. The floodplain widens quickly to the west. According to Mike Mungoven, soils scientist with the National Resource Conservation Service (NRCS), on hill slopes with greater than about 25 percent slope, soils form in channery colluvium. Soils on less sloping positions are formed in deep to very deep loamy windblown deposits. Soils with thick organic surfaces, permafrost and poorly drained conditions can occur on northerly aspects, shaded, or very gently sloping positions. Colder soils without permafrost support mixed Spruce/Birch woodlands while soils with permafrost support low scrub and sedge vegetation. South facing aspects tend to be well drained, lack permafrost, and support Paper Birch forests.

On the nearly level floodplain, soils are formed mostly in very deep stratified alluvium or in organic matter in some wet depressions. Increased distance from the river tends to increase wetness and organic matter accumulation as well as the occurrence of permafrost. On local highs, which are generally narrow, linear and lie roughly parallel to the river, soils can be moderately well to well drained, medium textured, and support White Spruce forest communities. Gravel and sand are very occasionally found underlying the medium textured sediments or more often at the emerging bar positions. In low areas on the floodplain, soils have a water table at or near the surface, at least part of the year. Wet mineral soils support grass and shrub communities while wet organic soils support sedge and moss communities. (Information about soils written by Mike Mungoven, NRCS Soils Scientist, 12/22/03 e-mail)

The map on the following page shows the Existing Resources in the Napaimute Area including gravel, rock, timber, mining, and water.



Clear water spring used by area residents for drinking water

The Central Kuskokwim Region, Alaska: U.S. Geological Survey Professional Paper

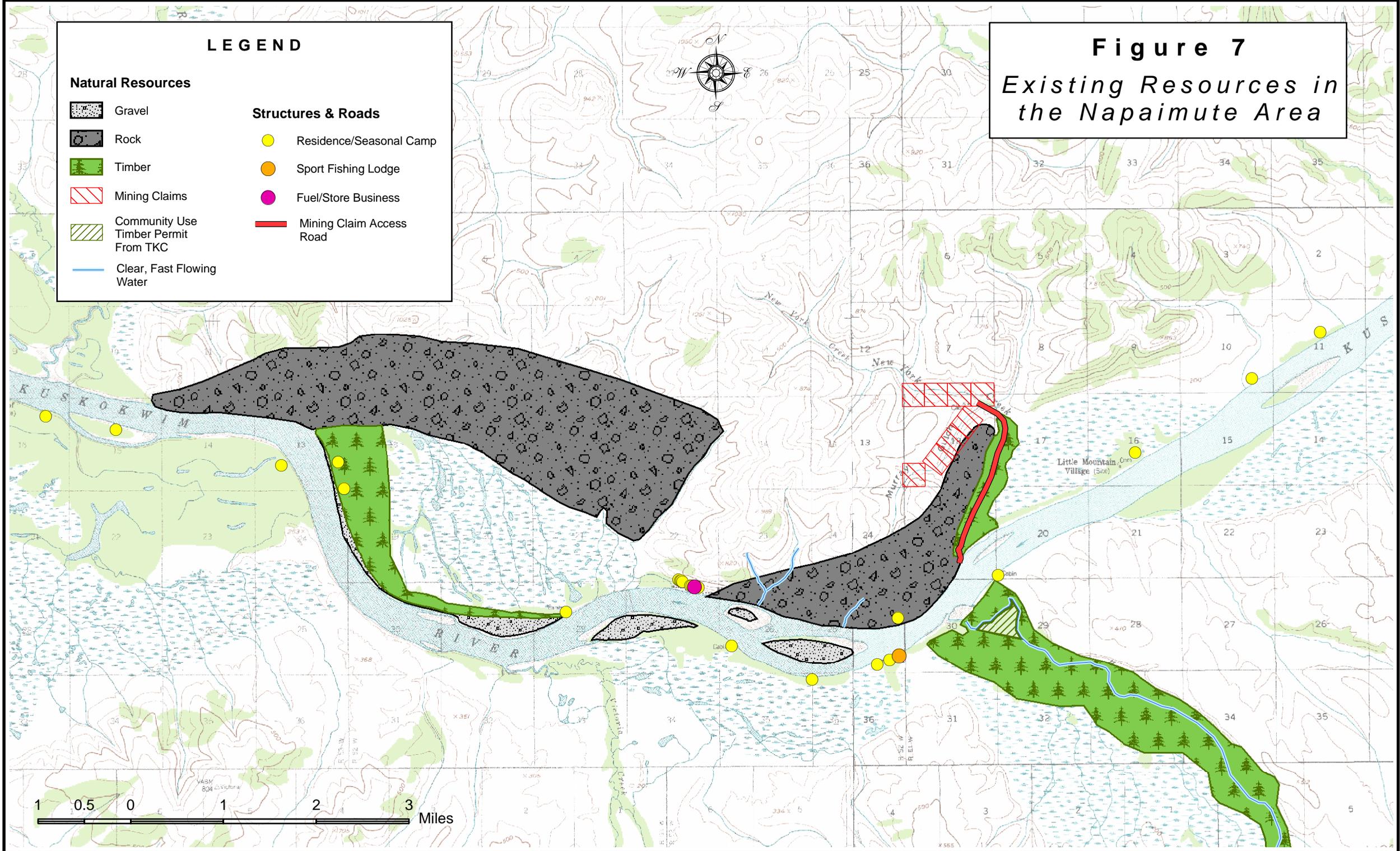
“The geology of the central Kuskokwim river region is dominated by a sequence of folded, sedimentary rock comprised of limestone, graywacke, siltstones and shales of Cretaceous and Tertiary age or earlier. These earlier sedimentary deposits are overlain in places by Late Cretaceous to early Tertiary volcanic and plutonic rock and some Quaternary basalt flows. During the late Pliocene or early Pleistocene epochs, the Kuskokwim Mountains were uplifted. The present topography has developed by erosion of this old surface on the uplifted blocks. The upper Cretaceous beds have been faulted at shallow depth into crested folds, which tend to parallel the margins of the sedimentary basin. Bedrock is locally overlain by thick surface deposits of loess and alluvium or colluvium of Pleistocene and Holocene age (Box, et al. 1993, Cady, et al. 1955).”

Source: Cady, W.M., Wallace, R.E., Hoare, J.M., and Webber, F.J., 1955

Figure 7
Existing Resources in the Napaimute Area

LEGEND

Natural Resources		Structures & Roads	
	Gravel		Residence/Seasonal Camp
	Rock		Sport Fishing Lodge
	Timber		Fuel/Store Business
	Mining Claims		Mining Claim Access Road
	Community Use Timber Permit From TKC		
	Clear, Fast Flowing Water		



Issues

Reestablishment of an almost extinct community in today's world is a difficult task where living a completely subsistence lifestyle isn't feasible. However, it is one to which the people of Napaimute have demonstrated a deep-rooted commitment. The proof can be seen today, as one rounds the river bend below Napaimute – it actually looks like a village again instead of just the grassy spot along the river with a collection of old decaying buildings that it once was.

It won't happen overnight. Economic development must be pursued along with building basic infrastructure. Many of Napaimute's original people are scattered. Picking up and coming home may be impossible for some – it may be more possible for the many non-tribal members in the local area who have expressed interest in Napaimute.

Obtaining funding for development may be difficult for a community that is presently only seasonally occupied. Additionally, there is growing pressure from state and federal government to streamline funding. The concept proposed is to channel funding to a regional entity rather than directly to the Villages. This would not pose a major change to Napaimute, which already compacts with the Association of Village Council Presidents, the regional non-profit corporation.

Napaimute's people hold a strong commitment to their ancestral home – one they have kept alive for over half a century and instilled in their descendents. Today, this long held commitment is becoming a reality. It is no longer a question of if Napaimute will become a viable Alaskan community. Now people want to know, "how soon?" This plan is a solid step towards answering this.

Issues that concerned Napaimute Tribal members and that the plan considers include the following:

- **Land base** – Napaimute must have a land base in order to proceed with reestablishing the community
- **Airport** – A modern rural Alaskan community requires safe, year-round air access
- **Home site development** – In order for Napaimute to develop into a fully functional year-round community, land must be designated for planned homesite development
- **Economic development** – In order for people to live in Napaimute year-round opportunities for income must be available
- **Communication** – For the community to develop safely and efficiently, reliable modern communication technology is required
- **Sanitation** – To establish and maintain a safe and healthy community, water, wastewater and solid waste management must be planned and implemented
- **Power** – Constant, reliable power is critical to the development of a modern community and alternative energy should be incorporated whenever feasible
- **Multipurpose facility** – Many services are necessary to an emerging community; a multipurpose building is the most efficient means of accommodating these essential services during initial development



Upper end of Napaimute, summer 2002

Public Involvement

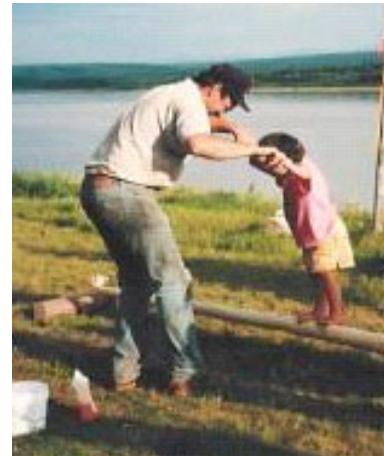
To assist in the development of the Napaimute Community Plan, several public meetings were held, surveys and newsletters distributed and plan information posted on the Napaimute website (www.napaimute.org). On March 17, 2003 the Traditional Council met with ASCG planners to discuss land status and the goals and objectives for the plan. On April 12, 2003 at the annual Napaimute Tribal gathering, the Tribal administrator gave a presentation on the land status and Tribal members discussed issues associated with reestablishing the community. ASCG gave an update of the plan and presented information about the survey. ASCG provided maps to Tribal members to review potential community layouts and distributed copies of the household survey for members to complete.



Faces of Napaimute



Napaimute Tribal member Delores Matter speaking at regional meeting



Fourth of July activities



Liz Murphy, Dee Matter and Bea Kristovich enjoy a fine day

Survey

In March 2003, ASCG mailed a survey to Napaimute tribal members to document the vision, opportunities and challenges for the reestablishment of Napaimute as a thriving community. The completed surveys accounted for 55 members living in nineteen households. Of the 38 surveys that were distributed to Tribal members, 50% responded. Complete survey results are available for review in the Tribal Office. 32% responses were rural Alaskan residents, primarily from Bethel area and an equal number were from the Anchorage/Wasilla area. The remaining 36% of the respondents were from out of state.

Employment & Economy

Those responding to the survey hold a wide variety of jobs and represent many walks of life. This diversity will be an asset to reestablishing the community. The Tribal members surveyed thought that Tourism and Mineral/Oil Exploration would have the greatest economic potential for the community.

Moving to Napaimute

The majority of people responding to the survey have visited Napaimute and 99% expressed an interest in living in the community if the necessary infrastructure were present, though not all could commit to living in Napaimute year-round. Most people's reasons for wanting to move to Napaimute fell into two categories: roots/ancestry and the environment. The table at the left lists the reasons people gave with numerical indicators next to words or phrases which were repeated more than once:

Reasons to move to Napaimute		
Roots/ Ancestry	Environment	Other
<ul style="list-style-type: none"> • Parent, Grandparent or Great-grandparent lived there • Napaimute is where I was born and is my roots • Feeling of closeness to family ties • Need to connect with ancestral lands • Would like to move closer to my relatives • Ancestral history • It's part of who I am • Roots • Family Roots 	<ul style="list-style-type: none"> • Lifestyle not as hectic as in other towns • Closeness to the outdoors is very healing • Peace and quiet (4) • Natural beauty of environment • Scenery and quietness • To get out of the city • Wildlife • Love the way of life • It's a wonderful place to raise children • Freedom • Camping – Vacation • Mountains 	<ul style="list-style-type: none"> • I just love it there • Retirement (2) • Part of the initial land claims of Napaimute • Pioneering opportunities— economic opportunity if there is a land base • To dock plane and fly into camp • Raise grandchildren • Gardening (2) • Subsistence lifestyle • Fishing (2)

Conclusion

Although the survey did not elicit responses from all households, some general conclusion may be drawn. There is strong interest in moving to Napaimute, if not year-round at least seasonally (summer) particularly if needed infrastructure was in place. The primary reasons for not moving to Napaimute year-round were the lack of infrastructure, economy and employment opportunities.. With the lack of infrastructure and employment identified as the major reasons for not moving to Napaimute, economic and infrastructure planning and implementation would most likely benefit the long term success of Napaimute as a prosperous community.

Goals and Objectives

Napaimute Vision



Restore Napaimute to a vital, sustainable community that provides a home for our people and preserves our cultural heritage.

The key elements of a comprehensive plan are its goals, objectives and actions that support the overall vision. The vision expressed by Tribal members and the Council is to restore Napaimute to a vital, sustainable community that provides a home for its people and preserve its cultural heritage.

Goals are general achievements that the community wishes to accomplish in the future. Objectives are specific and achievable statements in support of a goal. This chapter outlines goals and objectives in support of developing a viable community.

The goals and objectives listed here are not meant to be inclusive, but are representative of the most significantly reoccurring themes received from the input of the Council, Tribal Members at the 2003 annual Tribal gathering, and from the surveys completed.



Planning at 2003 Tribal gathering

Land Ownership Goal

Napaimute's top priority is obtaining a land base. This is the first critical step to reestablishment of Napaimute as a functioning, viable, year-round community.

Currently, the Napaimute Tribal Administrator and Council are in the process of obtaining site control on approximately 650 acres of land. While the final outcome and mechanism used to facilitate the legal transfer of this land to the Tribe is unknown at this time, the public input received to date indicates unanimous support for acquiring traditional areas for the development of Napaimute. It is also clear that Napaimute Tribal members want to retain control over these lands to the maximum extent possible. There is concern that inappropriate development could occur or that traditional land could be sold off which would be detrimental to the concept of a cohesive tribally-owned community.

Goal 1: To obtain a land base to develop a community
<i>Objective 1.1 Identify and evaluate conventional and non-conventional options for obtaining a land base</i>
<i>Objective 1.2 Implement the process for obtaining a land base</i>
<i>Objective 1.3 Identify community needs and develop functional alternative layouts</i>
<i>Objective 1.4 Ensure that each Napaimute Tribal member has the opportunity to obtain a home site or business lot in the community should they desire to return to Napaimute.</i>
<i>Objective 1.5 Evaluate interest from other local people in living in Napaimute and implement planned homesite program</i>

Community Development Goal

The Napaimute Tribe recognizes the need to thoughtfully plan for future land use and community development. There is a need to provide an airport location, housing lots and open spaces for personal residences, community buildings and facilities as well summer fish camps. Several alternative community layouts were reviewed by the Council, which has actively taken part in developing the layout of the new community. By prioritizing improvements in a systematic manner, Napaimute Tribal members can ensure that funds are allocated properly and the community is logically developed.

Goal 2. To develop a planned, sustainable community with the basic infrastructure
<i>Objective 2.1 Prioritize basic infrastructure needs</i>
<i>Objective 2.2 Decide on an airport location</i>
<i>Objective 2.3 Complete soils/engineering testing to determine which lands would be best suited for development</i>
<i>Objective 2.4 Develop a site plans and specific infrastructure plans and feasibility studies based on community input and technical viability</i>
<i>Objective 2.5 Develop a plan for homesite lots</i>
<i>Objective 2.6 Determine best site for landfill</i>
<i>Objective 2.7 Improve community infrastructure including communication technology and power</i>
<i>Objective 2.8 Plan and construct a multi-use facility to house essential services during initial community development</i>



As homes are restored and improved, planning must take place to create a sustainable community

Economic Development Goal

Tribal members, while still practicing traditional ways, recognize that they live in a modern world where a cash economy is a fact of life. A concern for most Tribal members is the need for jobs in Napaimute. Donlin Creek Mine, located about 40 miles northeast of Napaimute, is planned for full production within five years. This development could supply jobs to residents in Napaimute if they have year-round access. The Tribe has considered other economic opportunities, which they know are needed before most members would consider moving and making Napaimute a permanent home. These include services to residents, travelers from other Kuskokwim River villages and tourists; development of natural resources; and acting as an environmental monitor for Donlin Creek Mine operations as they affect the River.

Goal 3: To establish a variety of economic development projects to sustain Napaimute's economy.

Objective 3.1 Identify and develop an overall economic development strategy including identification and prioritization of short-term economic goals for the community

Objective 3.2 Explore potential for economic development through:

- General Store/Lodging
- Gas/Oil/Propane Business
- Tourism/Eco-Tourism
- Bed and Breakfast Establishments
- Laundromat, with Public Showers
- Mineral/Oil – Exploration and Development
- Consultant Services
- Environmental Center

Objective 3.3 Research and develop business plans for potential economic development projects

Objective 3.4 Complete applications for economic development projects



Moose Hunters!

Stop by and visit us in Napaimute,
only 1 hour above Aniak

Our coffee pot
is always on!
Open 24 hours!

Outboard Gas & Oil Sales

Good Luck Hunters!
Native Village of Napaimute

Traditional Values Goal

For many Tribal members, Napaimute is their birthplace; the place where they grew up, the place that in their hearts, they have always called home. For others, it is a place that holds their heritage and their shared identity with those that came before. Public input shows that Tribal members cherish many traditional values. These values are part of what is pushing the governing body – the Napaimute Traditional Council – to develop both the tribe and the village site in preparation for the day when the two will come together again.

Goal 4: To preserve our taproot, the traditional values that make us who we are
<i>Objective 4.1 Plan annual events that celebrate the early residents of Napaimute and past Tribal leaders</i>
<i>Objective 4.2 Continue to maintain website which highlights history of Napaimute</i>
<i>Objective 4.3 Encourage transfer of traditional knowledge to the younger generations</i>
<i>Objective 4.4 Register sites on the National Historical Registry</i>
<i>Objective 4.5 Apply for funding to preserve Napaimute historical sites</i>
<i>Objective 4.6 Establish a Napaimute museum/archives</i>



Gravestones in the historical Napaimute cemetery

Land Selection

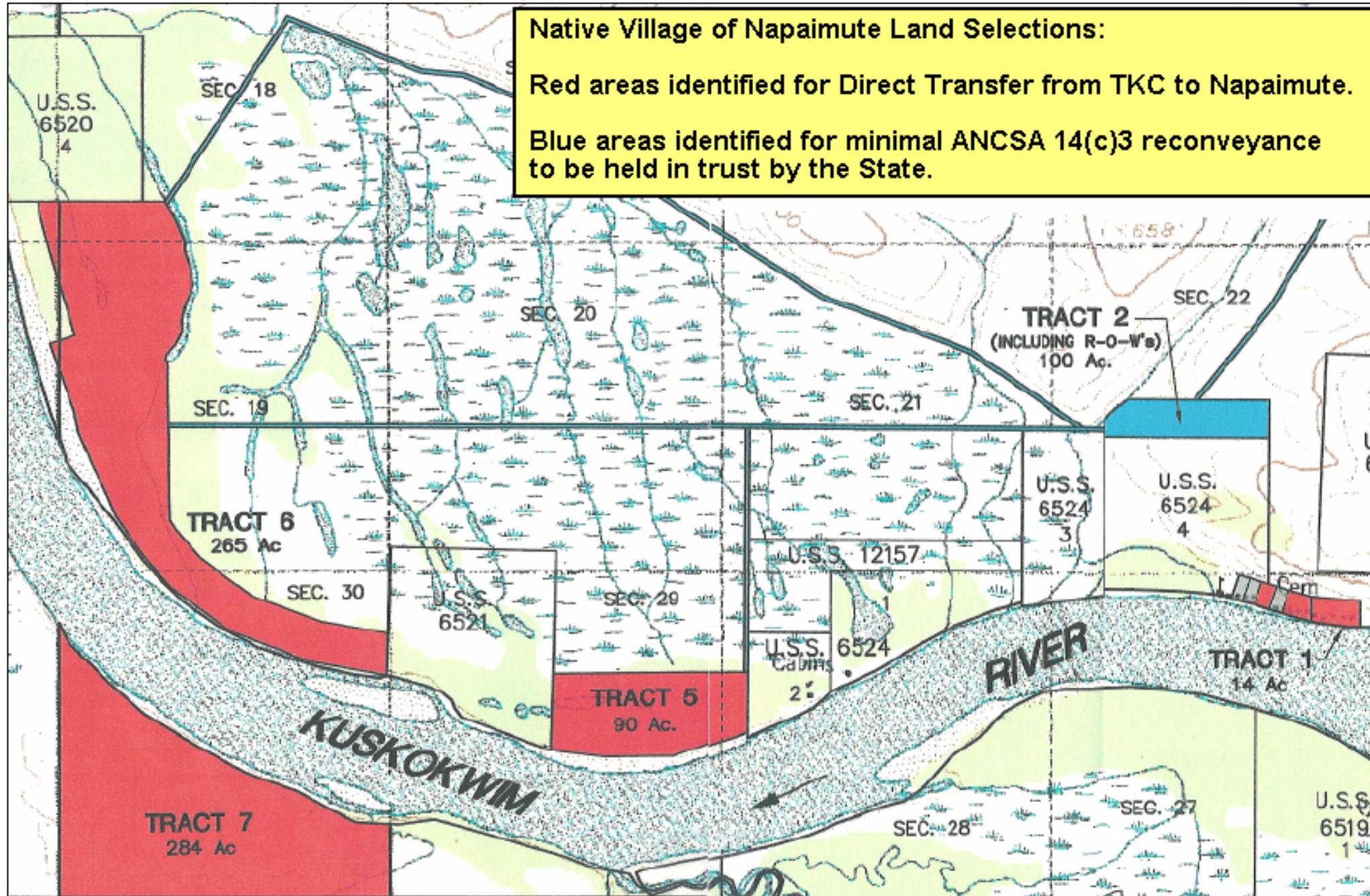
In keeping with the number one priority goal of establishing a land base, the Council has selected lands on behalf of the Tribe. Through an interim lease with the Kuskokwim Corporation (TKC), the Native Village of Napaimute gained site control over 650 acres of Napaimute's original holdings to use for current and future community purposes. As of late 2003, there are 8 residences, a Tribal office, saw mill, bulk fuel tank, two cemeteries and a barge landing in the original village site. (There are also 8 other permanent residences and a semi-active gold mine within a three-mile radius. There are many Native allotments in and around the original village site. What little land is available in the original village is reserved for future tribal operations. The Council would like to set additional land aside for the main community about three miles downriver from the current village site, and also reserve land on the south side of the river for future development. 14(c)(3) land selection was originally pursued as the land conveyance method to acquire land for village development. The Village Council became concerned with some of the restrictions and State mandates in acquiring land through the 14(c)(3) selection process. The Council then approached TKC and requested a direct transfer of land.



Napaimute as it is now and as it was then

The Council has selected four areas that will make up the future lands of Napaimute which are roughly 28 miles east of Aniak along the Kuskokwim River. They are designated as Tract 1, Tract 5, Tract 6 and Tract 7. The total amount of land they have selected is approximately 650 acres. The following table describes the tracts of land the Council has requested for direct transfer:

Tract	Size/Location	Current Use	Planned Use
Tract 5	90 acres of land located approximately 1.5 miles down river from Tract 1.	Currently unused.	<ul style="list-style-type: none"> • The location of this tract is ideal for a basic airport. • In addition to being on high ground, it is oriented in the direction of the local east/west prevailing winds. Wind data is currently being gathered by the Natural Resources Conservation Service (NRCS).
Tract 6	265 acres of land located approximately 3 miles downriver from Tract 1.	Currently unused.	<ul style="list-style-type: none"> • This site has the nearest suitable terrain on the same side of the river (north) as the traditional site. The direct accessibility from the bank of the Kuskokwim River would enable residents to develop homesite lots with minimal assistance. • Plentiful timber found on this tract may be useful for lumber for community development. • Once cleared, the site also has potential for small-scale farming.
Tract 7	284 acres of land located across from Tract 6 on a bluff on the south side of the Kuskokwim River.	NRCS has erected an automatic weather station on this tract to collect wind data for airport planning.	<ul style="list-style-type: none"> • When there is a substantial permanent resident population on the north side of the river, Napaimute will need to consolidate into one community, occupying one central area which is planned for Tract 7, the "community reserve." • It is the only nearby area suitable for a full scale community of up to 300 people. • Located at a higher elevation than the other tracts, Tract 7 is mostly covered in tundra underlain by permafrost. • It would be too expensive to develop Tract 7 without a sizeable permanent population to justify the cost. • The Council plans on establishing a 100-square foot test plot by removing the insulating tundra to see if over time it stabilizes. • This area is also adjacent to areas that may be suitable for a full scale airport.



Land Use Acreages Needed

Acreage needed for various facilities was researched. The following estimates are based on several rural Alaskan communities, the *Georgetown Community Master Plan*, the National Recreation and Park Association's *Recreation, Park and Open Space Standards and Guidelines*.

1. School: 15 acres for a combined site – which includes outdoor playing fields
2. Post Office: 1-2 acres
3. Landfill: With a 1.2% growth for a community of 50 (roughly 64 people in 20 years), 2 acres would be needed.
4. Sewage Lagoon: Based on a loading of 0.17 lbs/person/day and a treatment efficiency of 12 lbs/acre/day; two cells totaling 3 acres would be needed for a population design of 100 people.
5. Cemetery: 0.5 acres
6. Park: 15 acres
7. Clinic: 1-2 acres
8. Bulk Fuel Storage: 1 acre minimum for a population of 100 with a 100,000-gallon capacity. 2 acres would be needed if an equipment storage facility were included.
9. 10 Miles of Road with Utility Easements: Assume a 50-foot wide corridor (the road will be approximately 24 feet) depending on side slopes, drainage ditches, etc. Approximately 60 acres will be required.



Council members discuss land selection

Land Use Plan



Meeting with ASCG to work on Community Master Plan for Napaimute

ASCG met with the Napaimute Traditional Council on March 17, 2003 to discuss land selection and their vision of community land use. A conceptual map showing a community layout on the 650 acres of proposed tracts was displayed for comment at the Native Village of Napaimute Annual Tribal Gathering on April 12, 2003. Through correspondence with the tribal administrator during the summer of 2003, further changes were made to **Figure 9 Napaimute Proposed Land Use Map** which is shown on the following page. As part of the plan, the conceptual map can be used as a tool to both generate funding and to show TKC that the village has considered future habitation of the site in great depth. As additional field data is gathered, the land use map is likely to change.

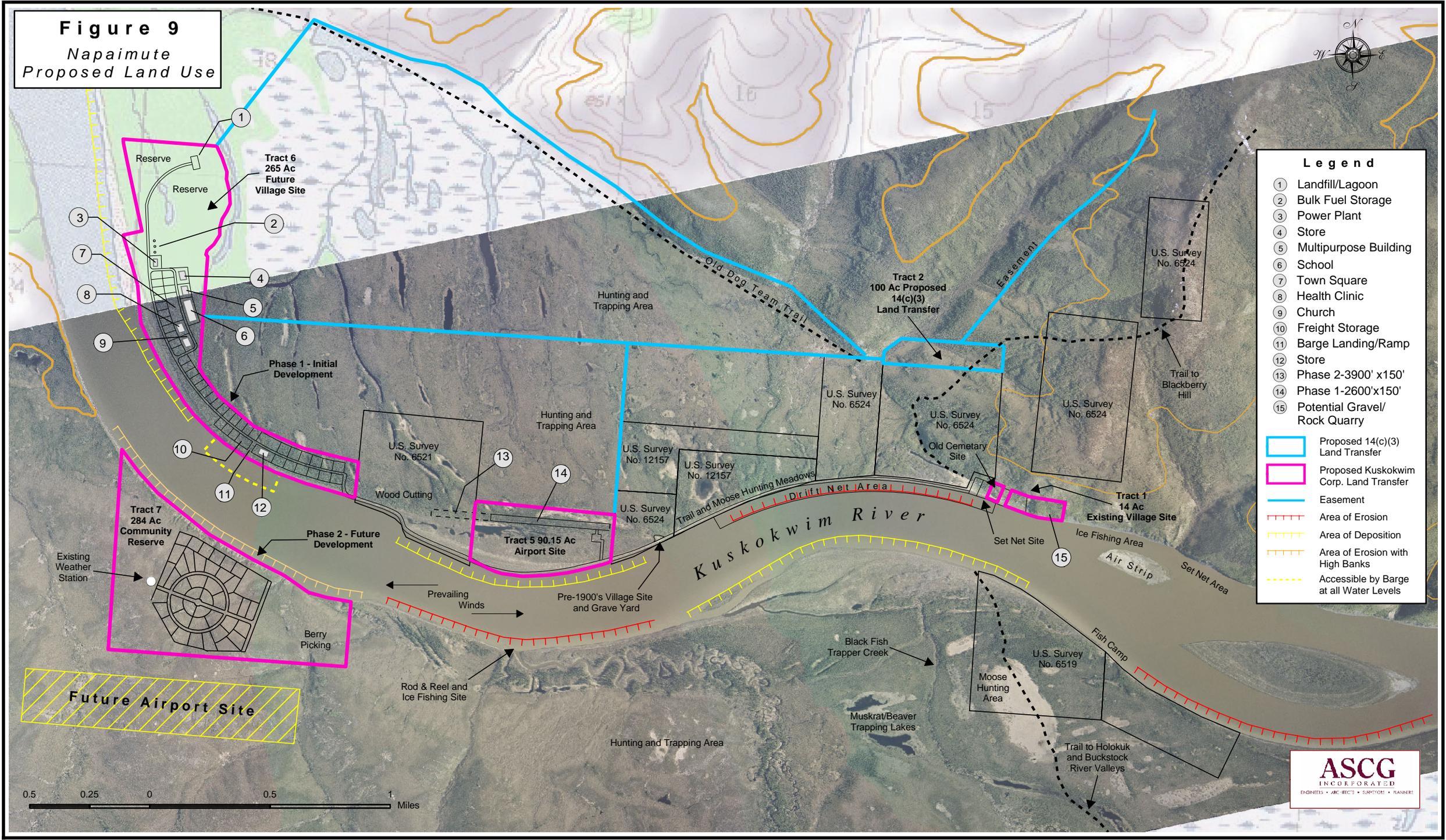


Napaimute Annual Tribal Gathering, 2003

Napaimute Vision

Restore Napaimute to a vital, sustainable community that provides a home for our people and preserves our cultural heritage.

Figure 9
Napaimute
Proposed Land Use



Legend

- ① Landfill/Lagoon
- ② Bulk Fuel Storage
- ③ Power Plant
- ④ Store
- ⑤ Multipurpose Building
- ⑥ School
- ⑦ Town Square
- ⑧ Health Clinic
- ⑨ Church
- ⑩ Freight Storage
- ⑪ Barge Landing/Ramp
- ⑫ Store
- ⑬ Phase 2-3900' x150'
- ⑭ Phase 1-2600'x150'
- ⑮ Potential Gravel/Rock Quarry

- Proposed 14(c)(3) Land Transfer
- Proposed Kuskokwim Corp. Land Transfer
- Easement
- Area of Erosion
- Area of Deposition
- Area of Erosion with High Banks
- Accessible by Barge at all Water Levels



Community Priorities

Several basic infrastructure facilities are recommended in the development of the community of Napaimute. The information below is not all-inclusive but begins to address some of the most critical infrastructure needs, including airport, homesite development, economic development, communication, sanitation, power and a multipurpose facility.

Airport

The Council identified the construction of an airport to be of high priority to Napaimute.

There is a gravel bar in the middle of the river, slightly upstream from Napaimute that has been historically used as a temporary runway; however, it is short, dangerous, and not accessible during critical freeze-up and break-up times. Two known plane crashes have occurred in past years by pilots attempting to land there, and it is rarely used.



The first plane to land in Napaimute

The Traditional Council realized during initial planning for the community that a safe airfield with year-round accessibility was important to the successful development of Napaimute. The Council identified a location for a runway on Tract 5 between the old village site and the proposed homesite tract on the north side of the river. This tract contains approximately 3,100 lineal feet paralleling local prevailing winds.

The Native Village of Napaimute recognizes that the probability of obtaining the multi-million dollar funding necessary for a full-scale runway project is extremely low and will most likely not be justified until Napaimute has a large enough permanent population base. On the other hand, it will be difficult to build a permanent population without year-round air access to and from Napaimute. Nobody wants to stay during the critical times of break up and freeze up when access via the river is impossible. In 2003, a person staying in Napaimute during the fall would have been physically isolated from the rest of the world for four months due to the unusually warm winter. River conditions didn't stabilize to allow for safe travel until late February. This is unacceptable for a community in the modern world. People need to be able to travel at will for business, pleasure and medical reasons, and to receive goods and services such as regular mail.

To achieve their need for air access, the community looked back at how other villages developed their runways over the years. The days when most villages had no runways are still in the living memory of our middle-aged and elder members. Rivers were the first runways for much of Rural Alaska; the water in summer, the ice in winter, no plane service during break up and freeze up unless there was a convenient sand or gravel bar. Later, as airplane travel became a more integral part of life in the villages, the need for permanent airfields became important and some energetic individual or government would build one. There are still large communities operating with 1,800 feet or less of runway, though this is changing rapidly with the State's airport improvement program. The standard community class airport suggested by the State of Alaska and the Federal Aviation Administration includes a runway length of 3,300 feet with an additional 300 feet of safety area on each end for a total minimum length of 3,900 feet.



Russ Merrill's Plane, Napaimute teacher, George, Pilot, Elsie, & Lillian

The tribal office has spent much time looking for a solution to this dilemma. They have asked the question, how can Napaimute get an airport in this initial phase of its modern development?

While there are still several obstacles to overcome in pursuit of a tribally owned airfield, precedents set by other villages that are local airport operators provide a guide for Napaimute to follow in reaching its goal of safe, year-round air access that will help solidify the establishment of Napaimute as a permanent Alaskan community.

FAA has said that Napaimute could build an airport in two phases. The Napaimute Council has identified Tract 5 for future airport development in this two-phase process. Phase I would be a 2,000-foot runway with 300-foot safety areas on each end (total 2,600 feet) which would fit nicely into the area identified for a basic airfield in Tract 5 as shown on Figure 9. In later years, Phase II will be implemented to bring the airfield up to the 3,300-foot standard. The second phase runway would encroach into the nearby Native Allotment to the west. The Native Village of Napaimute is in the process of soliciting for firms to complete a feasibility study to help them develop the airport. So, at this time, Napaimute plans to "scrape" out an airfield that is safe and accessible, but on a smaller scale than the community class standard. It appears that a tribally constructed, operated, and owned airfield is the best solution for the short term or Phase I.

For Phase II, Napaimute will seek FAA funding for airport planning and development. FAA usually begins by funding an airport master plan to assist in an appropriate design for the airport. To obtain FAA funding for an airport master plan, Napaimute must contact FAA about their desire to become an airport sponsor and request funding for an airport master plan (master plans take about two to three years). To receive FAA funding, the Tribe must complete a Disadvantaged Business Enterprise (DBE) plan and must demonstrate their capacity to administer funds. The FAA also requires a 6.25% match. Typically, the 6.25% match is funded through the State of Alaska and the community sponsor, with each paying 3.125%. Communities have been successful in securing their 3.125% match through the Denali Commission. Typically, Airport Master plans costs approximately \$300,000 and include surveying, aerial mapping, geotechnical investigations and wind analysis to assist in the planning effort. The wind anemometer installed in Napaimute may assist in development of the airport plan.

To receive funding for airport design and construction, land ownership and year-round residents must be established and the airport must be listed on the FAA's federal list of airports called the National Plan of Integrated Airport System (NPIAS). To get on the NPIAS, the community would have to meet the following requirements:

- The airport is included in an accepted state or metropolitan airport system plan.



Skiplane at Napaimute

- The airport serves a community more than 30 minutes from the nearest existing or proposed NPIAS airport.
- The airport is forecast to have 10 based aircraft within five years.
- There is an eligible sponsor willing to undertake the ownership and development of the airport.



The Tribal Council has designated this site for airport development.

The FAA will also require the village to operate and maintain the airport for 20 years beyond the issuance of the airport grant. Landing fees (a fee generally passed on to the consumer) is the most common way to fund these activities. FAA would provide, as part of the airport project, a snow removal equipment (SRE) building and equipment to maintain the airport. Napaimute would have to supply gas, equipment maintenance, heat to the building, and labor which is estimated at \$50,000 a year or more. If the NPIAS listing is unattainable, the community could seek funding from other sources.

The following is a preliminary cost estimate that the Council used for initial planning purposes:

Napaimute Airport Cost Estimate

Description	Unit	Unit Price	Quantity	Amount
Clearing and Grubbing	LS		1	\$20,000
Geotextile Fabric	SY	\$1.00	3,000	\$3,000
Crushed Aggregate	CY	\$8.00	15,000	\$120,000
Structural Fill	CY	\$6.00	60,000	\$360,000
Mobilization/Demobilization	LS		1	\$50,000
Construction Surveying by the Contractor	LS		1	\$45,000
Estimated Construction Cost				\$598,000
Design and Environmental (10%)	LS		1	\$59,800
Planning and Project Management (5%)	LS		1	\$29,900
Engineering and Construction Management (10%)	LS		1	\$59,800
Estimated Design and Construction Management Cost				\$149,500
TOTAL COSTS				\$747,500

*Assumes 2,000' x 75' R/W, No lighting, no nav-aids, no road cost



Akiachak has an airstrip similar to that under consideration by the Napaimute Tribal Council



In the summer of 2004, a Preliminary Feasibility Study for the Proposed Napaimute Airport will be conducted that will refine these estimated costs. This study was funded through BIA's FY 2002 Transportation Planning Grant.

On the following page is a diagram of a typical airport layout.

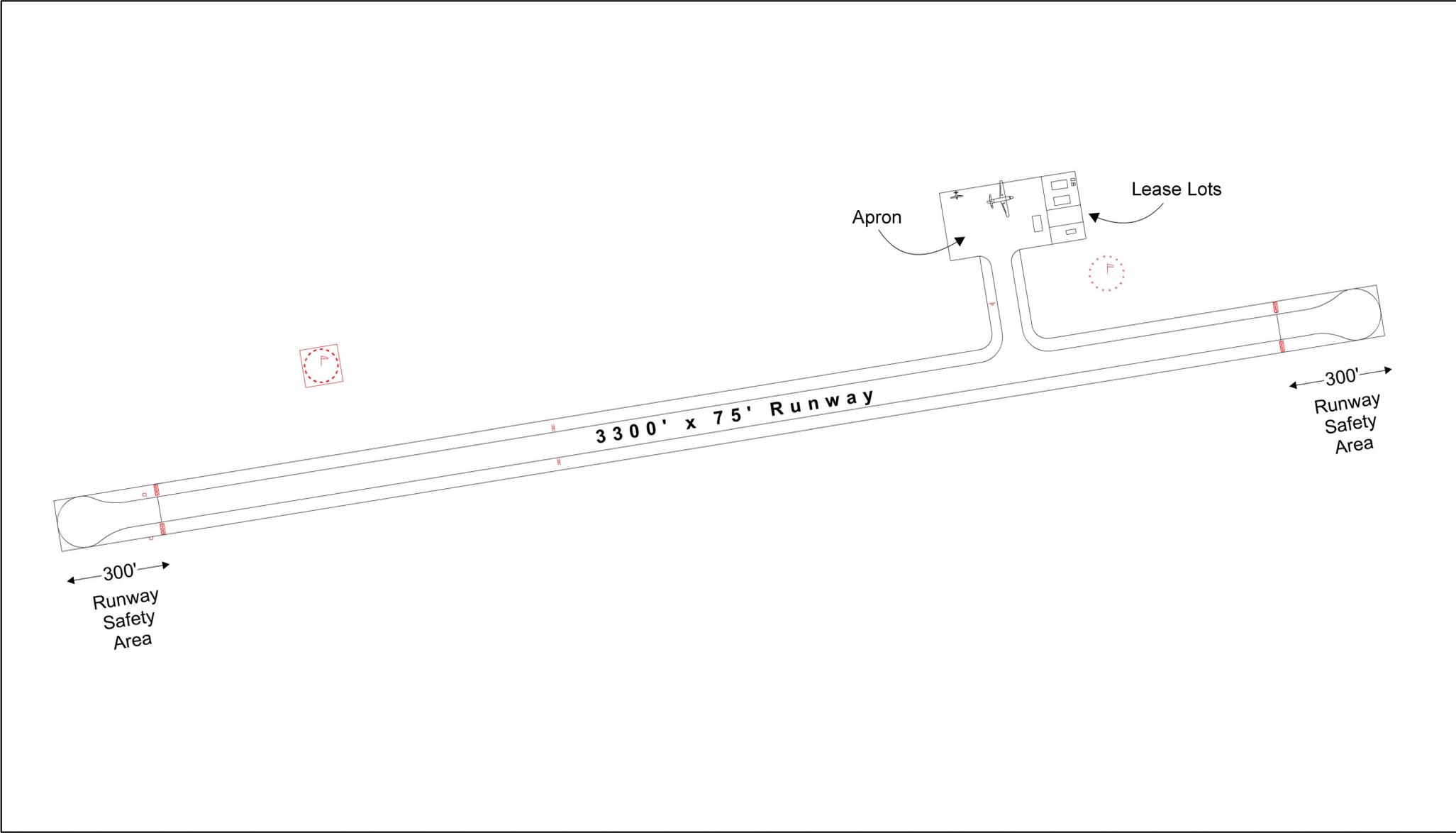


Figure 10 Typical Community Class Airport Layout

Homesite Development

Once a land base is finalized, it is critical to determine which areas will be used for specific purposes. A key concern to the Tribal Council is to set up a system for homesite development. One way to begin this process is to study the methods of other entities who have performed a similar endeavor. The state regulations that governed the Alaska Homestead Act (Located in Appendix E) provide some insight into the steps necessary for homesite development. The components of the project include:

- Survey of the lands involved and marking of sites available for homesites
- A system to apply for permits to receive a homesite
- List of qualifications an applicant must meet to receive a permit
- Reasons for which a permit could be revoked
- How the permit is granted
- Priority of applications

The Native Village of Georgetown is currently in the process of establishing a homesite program in their community. The Tribal President negotiated with the state Municipal Land Trustee for the Georgetown Tribal Council to administer a homesite program in Georgetown. The process took time. Public notices had to be posted and published in appropriate newspapers. Affidavits of these postings were submitted to the state. The state indicated that Georgetown would have to waive their sovereign immunity from suit for claims arising from their activities involving the land disposal. Currently the Council is awaiting legal counsel on this matter. When that obstacle is worked out the process will go forward. Components of the program include:

- Original (not descendent) members are given an opportunity to apply for a lot using a state application form.
- Applications are submitted to the Georgetown Tribal Council for review and approval.
- Right-of-entry (r-o-e) permits are granted to applicants.
- Approved applicants begin construction of habitable dwellings as defined in the r-o-e permits.
- Maintenance of setbacks and adequate separation for wells and septic systems is closely monitored by a Tribal Land Committee.

The Georgetown homesite project utilized the state's r-o-e permits and land lease documents as templates, modifying them to suit the Tribe's needs. They inserted language requiring applicants to submit site plans including housing placement, well location and septic system location, and any other improvements planned to the lot. The site plan is required to contain accurate locations and distances for all improvements. The Council's Land Committee reviews these plans prior to any construction or installation. Language was also added that the applicant must provide the Council with the location of a planned pit privy and obtain approval from the Council before construction of a pit privy.

The Georgetown Tribal Council indicated that they would share additional information and documents when their legal position had been clarified.

Economic Resources

Employment in Napaimute is seasonal and primarily through the tribal government. Residents also have limited opportunities for cash employment in the surrounding area and subsistence supplements local incomes. Lack of economic opportunities is commonly cited as the greatest obstacle for year-round establishment of Napaimute. Currently, the Tribe is actively involved in the following economic ventures:



Tank installed at Napaimute

Gasoline/Oil Sales

In the summer of 2002, the Tribe purchased a 5,000-gallon double-walled tank. A limited amount of gasoline was purchased to test sales during the height of the fall hunting season in September of that year. All the gasoline was sold with a week still left in the season. Up to 80 boats travel past Napaimute each day during the September hunting season. Clientele for gas sales include the surrounding communities of Aniak, Kalskag, Chuathbaluk, and Crooked Creek; a nearby fishing lodge; and Lower Kuskokwim residents traveling on the river.

In 2003, the Tribe continues to operate their gas business and expanded it this fall to include the sale of a few basic snack food items. The tank is filled twice per season but it appears that a third delivery of fuel will be needed this season.



Equipment is available to tribal members for rental at a reduced rate



Equipment Rental

The dozer, sawmill, and other tribally owned equipment are available for rental with a 40% reduced rate for Tribal members. To date, use has been limited to Tribal members and Tribal ownership of this equipment can aid in future infrastructure development.



Bringing out logs from cutting site



Delivering the logs to Napaimute



Logs await use along the Kuskokwim River bank



The State granted the Tribe a timber-cutting permit at this site 3 1/2 miles from Napaimute

Timber Sales

The Tribe has obtained a timber permit to harvest trees on State land located near Napaimute. The timber is intended to be used for local Tribal building projects. In the future, timber could be sold for other purposes. The Tribe is also considering applying to the Kuskokwim Corporation for rights to harvest timber on Corporation lands.

Lodging

The Tribe has a rental unit for visitors. Opportunities exist to build additional rental units or a lodge to accommodate tourists.

Donlin Creek Mine

Donlin Creek is located near the Kuskokwim River, 12 miles north of Crooked Creek. See Figure 11. The Donlin Creek Mine, which is being developed by Novagold Resources Inc. and Placer Dome Inc., is located entirely on land owned by Calista. At this time, access is primarily by air; a 5,000-foot airstrip is located at the site. There is also a 15-mile winter trail from Crooked Creek to Donlin Creek. Federal and State funds have been earmarked for a road to Donlin Creek from a proposed dock on the Kuskokwim River about six miles below Crooked Creek. These funds, totaling approximately \$14 million, are for permitting, design and an environmental impact study for the road, which are expected to be started in 2004.

The Donlin Creek prospect is described as a “major gold occurrence”. As of April 2003, the measured and indicated gold resources there totaled 11.1 million ounces. Inferred gold resources measure 14.3 million ounces. The project is in the pre-feasibility stage, which is expected to be completed in the second quarter of 2004.

As the Donlin Creek Mine project progresses, there will be opportunities for work for Napaimute residents.



The fuel barge “Napaimute” unloads cargo at the dock.



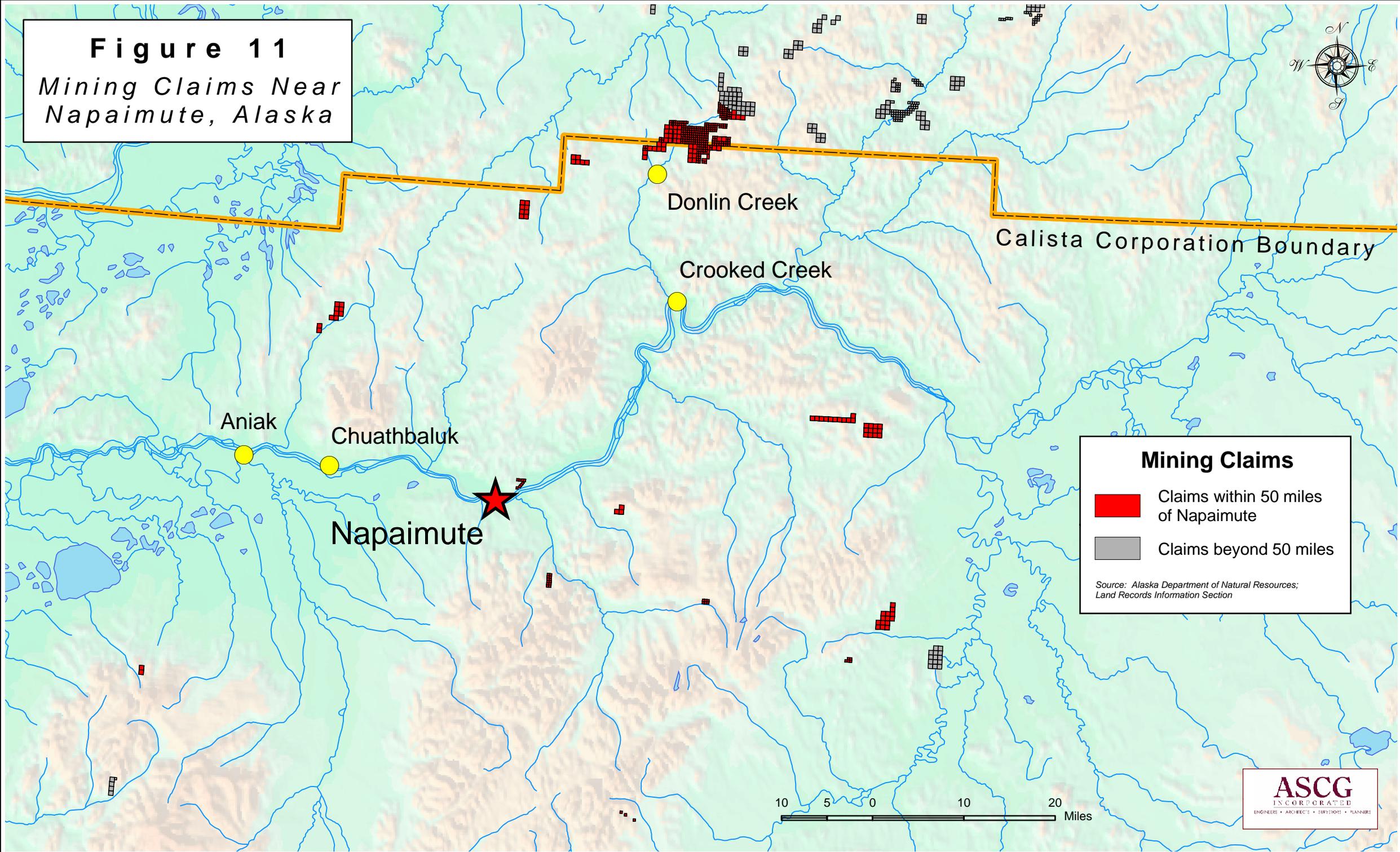
Donlin Creek Mine worker

Proposed Economic Resources

According to the Tribal member survey, meetings with the Council and input at the 2003 annual meeting, potential economic opportunities for residents of Napaimute include the following:

- General Store/Lodging – the general store could offer visitors to the community as well as residents a place to purchase food, gas, oil, propane, hunting and fishing licenses, tackle and supplies, repairs, and other necessities for enjoying the benefits of Napaimute's great location. Phone service and internet access could also be made available.
- Gas/Oil Business
- Tourism/Eco-Tourism – summer operations could be geared toward visitors from outside Alaska who come for wildlife viewing, sport fishing, hiking, camping, experiencing Native culture, visiting fish camps and historical sites. In the winter, visitors from Bethel and other parts of Alaska look for recreational opportunities such as cross-country skiing, dog mushing, snow machine riding, wildlife viewing, and relaxing with hot tubs, good meals, astronomy and the northern lights.
- Bed and Breakfast Establishments – like the store, B&Bs serve the needs of tourists. Besides food and a place to sleep a B&B offers a personal touch and interaction with local people
- Laundromat, with Public Showers – this facility could also serve both the local population and visitors to the community, offering a washeteria, showers and other related services.

Figure 11
*Mining Claims Near
Napaimute, Alaska*



Mining Claims

-  Claims within 50 miles of Napaimute
-  Claims beyond 50 miles

Source: Alaska Department of Natural Resources;
Land Records Information Section

10 5 0 10 20 Miles

- Mineral/Oil – Exploration and Development
- Sawmill Business – produces lumber and cabin packages for local use. There is also the potential for firewood sales to down-river communities.
- Consulting – various Tribal members have training and technical expertise that can be marketed.
- Environmental Oversight – with development occurring nearby, such as the proposed dock downriver from Crooked Creek and road from there to Donlin Creek Mine, Napaimute is uniquely situated to act as an environmental “watchdog” for the region, monitoring water quality and other related issues.

Just as communities along Alaska’s highway system serve the needs of highway travelers, Napaimute proposes to serve the needs of travelers along the Kuskokwim River. The River links the area’s communities providing the potential for a customer base of several thousand. Already, the fuel and snack food store serve these travelers. As the community grows, so will opportunities to tap into this market.



Milling lumber for the Napaimute storage building



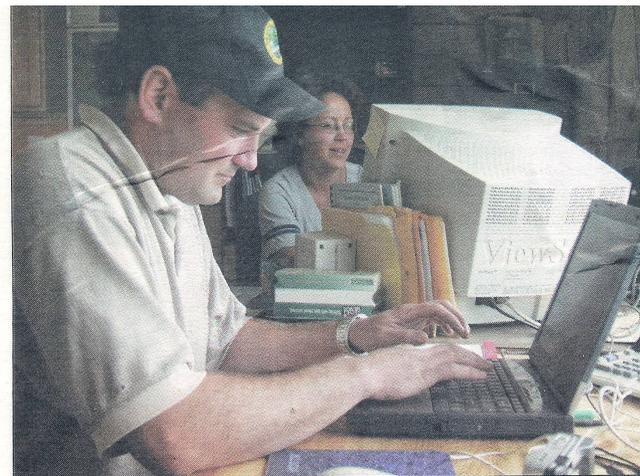
Logs for the multipurpose building wait in the staging area at the sawmill

Communication

The Traditional Council recognizes that the development of a technologically current communication system for the village is a key component to year-round residence. In this age of practically instantaneous communication, Napaimute's potential residents need to know that they will be able to conduct business and keep in touch with friends and relations from their homes in Napaimute. The village currently has a VHF radio, Internet Dish, Iridium Phone and a satellite dish. A huge step toward meeting the goal of up-to-date communications was taken in March 2004 when a radio phone with similar service to standard telephones was installed in the Tribal Office.



Traditional Chief, Delores Matter makes first phone call from Napaimute Tribal Office.



High technology is a key tool in bringing back to life the Native Village of Napaimute. Above, Mark Leary, Tribal Administrator and Shelly Leary, Tribal Council Secretary work from the log cabin village council office. Computers, hooked up to the outside world through a Starband Internet satellite dish, allow them to conduct business hundreds of miles away from urban centers. Mark Leary says he discovered the power of the Internet when he was unable to locate any animal traps in Anchorage, but could easily purchase them on worldwide web.

Photos by Ted Horner



Internet dish technology allowed the Tribal Office to operate out of Napaimute for the first time.

Sanitation

The Council recognizes that to establish and maintain a safe and healthy community, water, wastewater and solid waste management must be planned and implemented.



Black bears are found in the vicinity of Napaimute

Solid Waste Management

As the level of activity has increased in and around Napaimute in recent years and is expected to continue to rise with the development of the community, the need for a solid waste management strategy has become another high priority for the Traditional Council.

In past years, area residents burned as much solid waste in individual burn barrels as possible. Food scraps were deposited into the river. Cans, glass, and other non-burnables were collected and hauled by individuals to the nearest community land fills – usually in Aniak or Crooked Creek. This was done by boat or snow machine. More cumbersome items such as batteries, waste oil, old trucks, junk snow machines, and rusty

drums were taken away by barge and disposed of as far away as Bethel – 160 miles downstream. The current amount of solid waste being produced has made these past practices cumbersome and even, at times, hazardous.

The individual burn barrels pose a potential wildfire threat during drier periods of the year. Bags of non-burnable waste sit around in various areas waiting for the next trip to the Aniak dump. These attract animals which sometimes get into them and spread garbage. Bears coming into the community are of the greatest concern. Each year there are instances of close encounters with bears that have come into Napaimute to raid garbage. Most recently a four year old child walked right into a young black bear that was behind a house digging in the trash.

In 2003, the Native Village of Napaimute applied for and received a Solid Waste Demonstration Grant from the Alaska Native Health Board to begin addressing solid waste management for the developing community. The funding was used to develop a solid waste management plan and to purchase and install a 1,000-gallon, portable burn box, two steel “bear proof” dumpsters,



Bears attracted by trash pose a hazard to the village

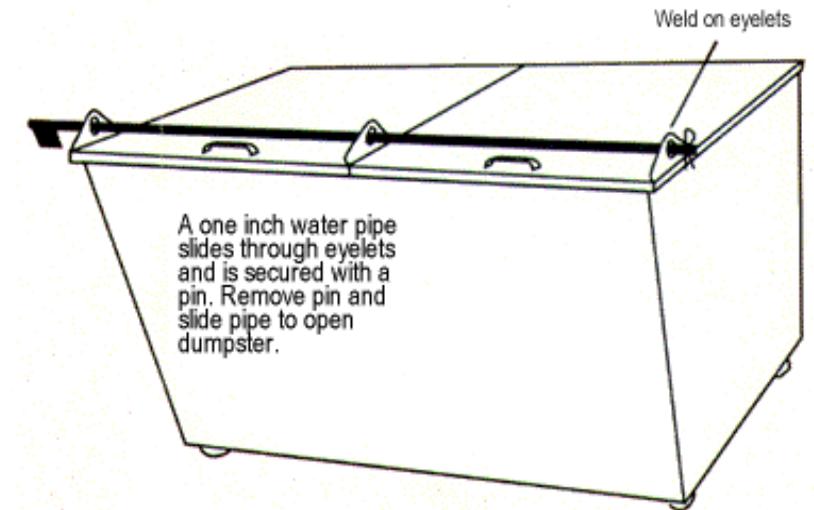
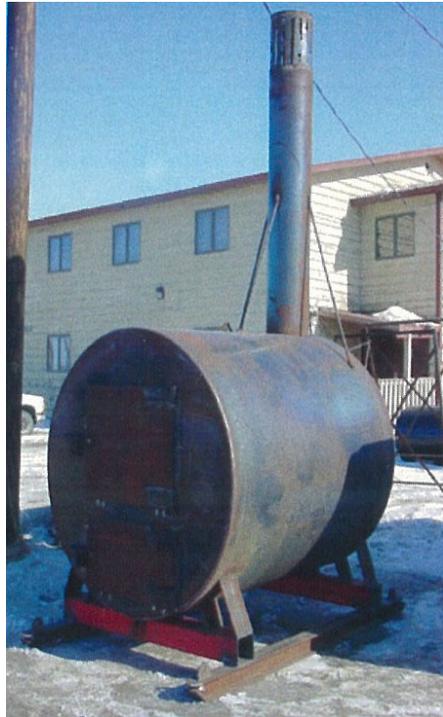


Figure 12 Typical bear-proof dumpster



Napaimute does not want an unregulated dump like this one in another village.

Burn box will reduce solid waste that has to go into a landfill.

strategy, until a more comprehensive solid waste management study can be completed. The above strategy will ensure that deposits in the interim dumpsite will be minimal – mainly ash. In the long term, a permanent landfill will be needed as more residents come to Napaimute.

Sanitation

On-site wells and septic systems are currently used for sewer and water services in Napaimute. This system requires a minimum of maintenance and if soils are suitable is an appropriate method for water delivery and waste disposal for Napaimute. Should the community desire an alternate method, Village Safe Water funds can be applied for to assist in the development of a Sanitation Master Plan. The Sanitation Master Plan would also be useful in identifying an appropriate location for a landfill. The VSW applications are due to the agency by mid-September and are available on their web site.

Figure 13 on the following page shows the layout of existing wells and leachfields. In addition, it indicates areas in which additional wells could safely be drilled and the appropriate distances between wells and leachfields. Besides being separated from wells, leachfields must be set back from the river at least 100 feet. Figure 14 shows possible lot layouts for appropriate well and septic separation.

and individual aluminum can crushers. The burn box, installed in the spring of 2004, is large enough to meet the growing needs of a developing community for several years to come. The dumpsters will serve multiple purposes. Besides providing a centralized secure area for storing solid waste, one will be for storing burnable garbage until scheduled burn times. The other will be for the storage of aluminum cans that have been compacted by individual households with the can crushers. Arrangements have been made with one of the local barge companies to pick up and deliver the aluminum to the recycling station at Bethel at no cost to the village. This will be done a minimum of twice per season.

The Council has identified an interim dumpsite that will be used in coordination with the previously described solid waste management



Sanitation Contacts

State of Alaska, Department of Environmental Conservation

Ken Collison
(907) 465-5137

Yukon Kuskokwim Health Corporation

Karl Powers
(907) 543-6427
karl_powers@ykhc.org

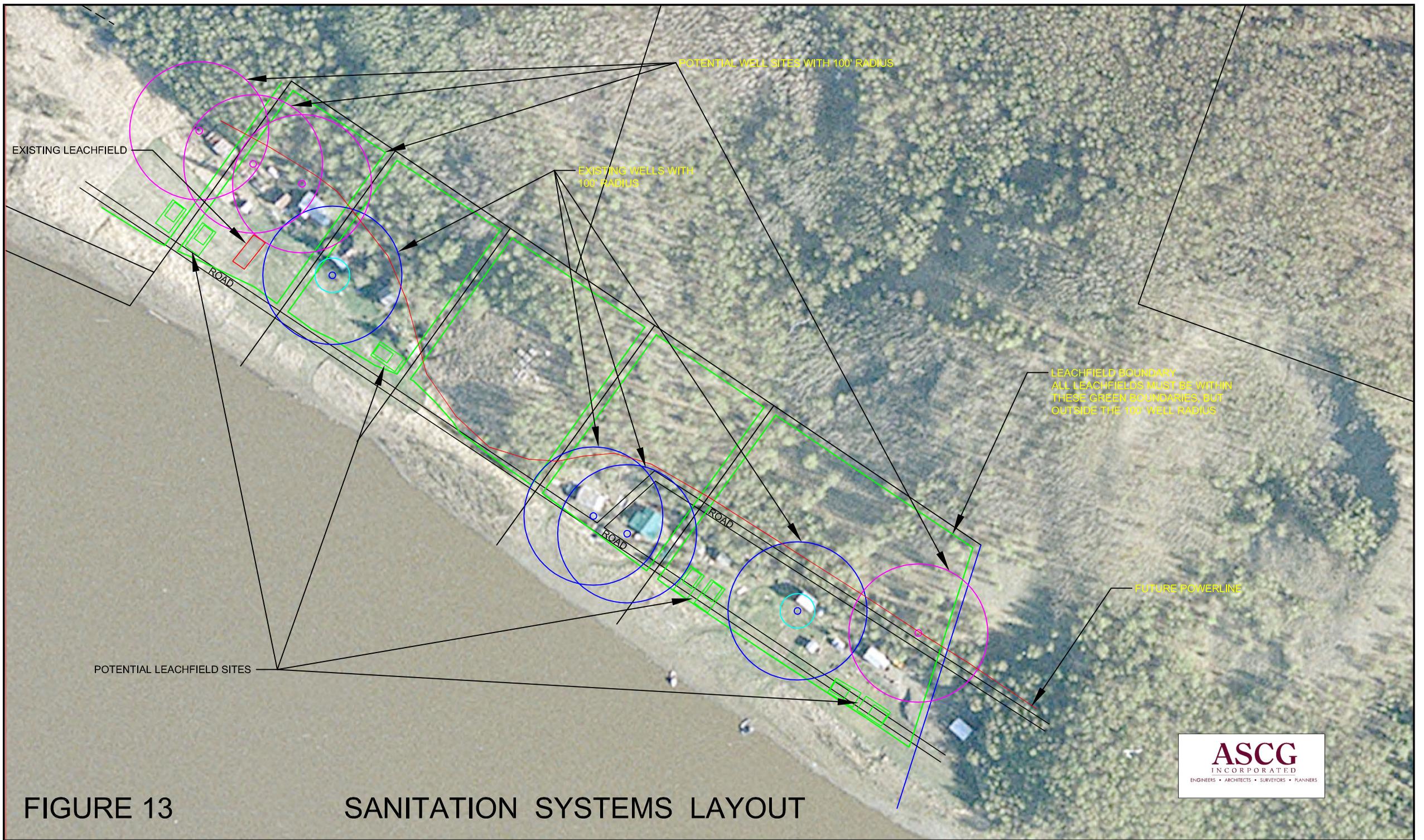
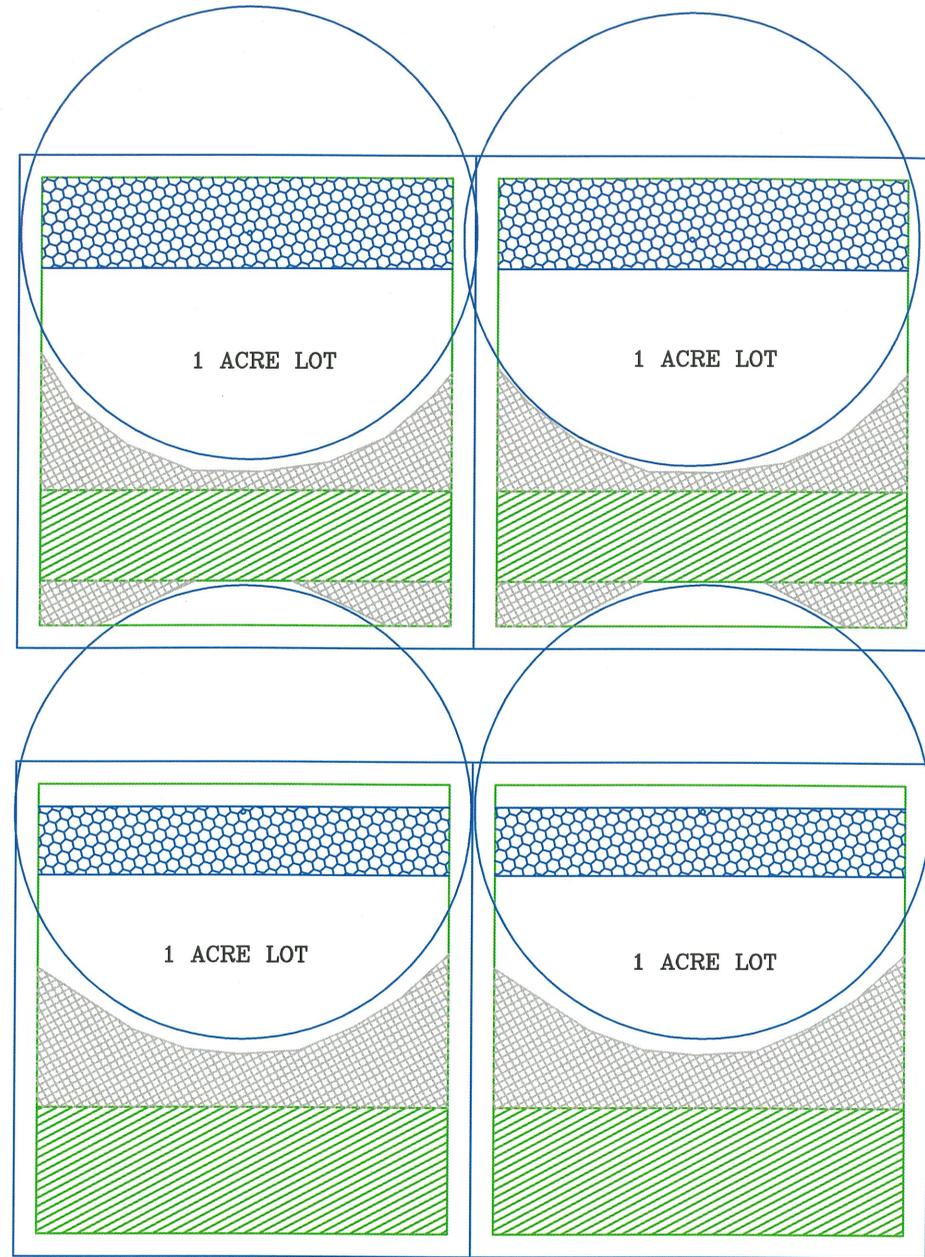


FIGURE 13

SANITATION SYSTEMS LAYOUT

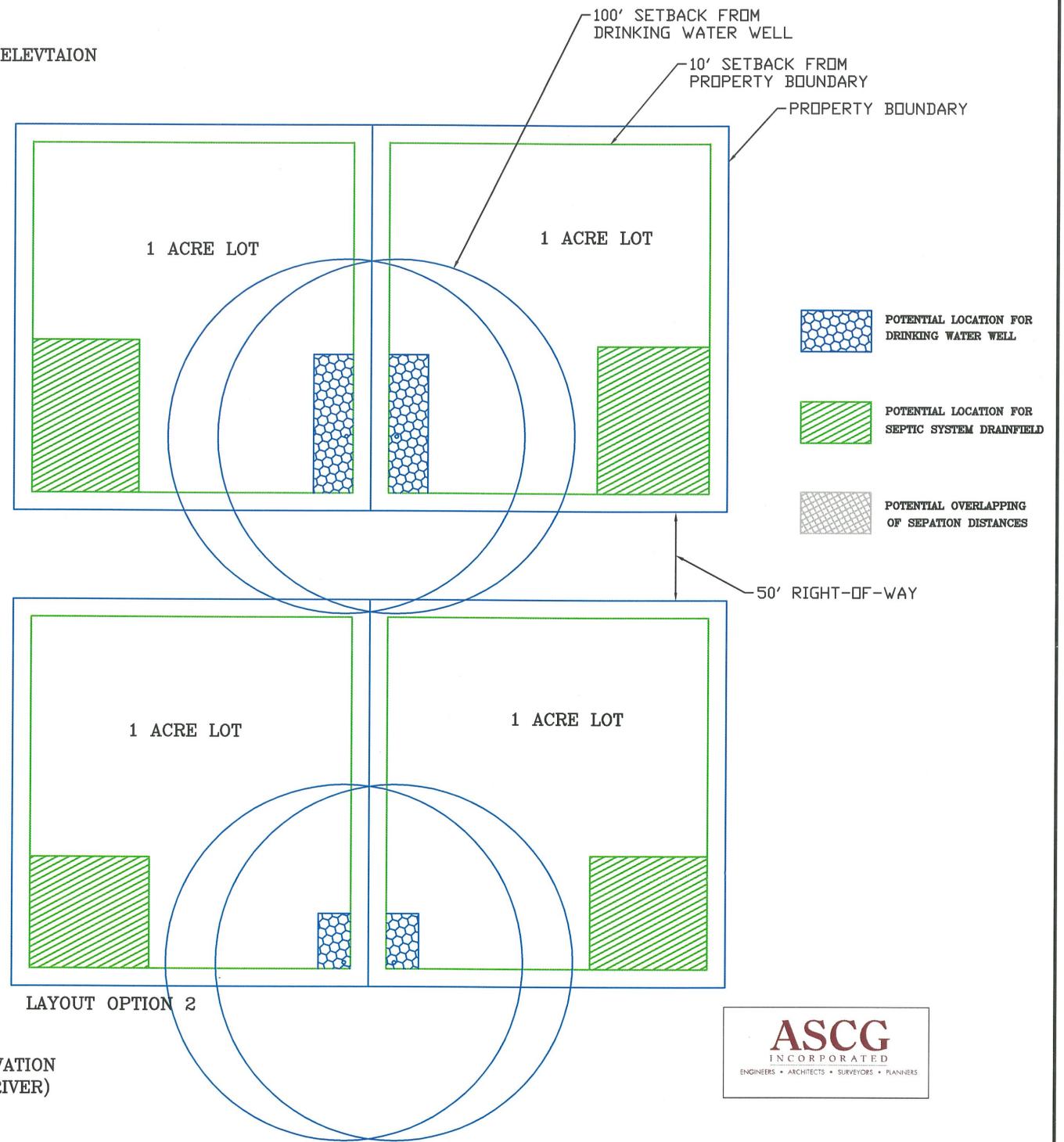




LAYOUT OPTION 1

WELL AND SEPTIC SEPARATION LAYOUTS

HIGHER ELEVATION



LAYOUT OPTION 2

LOWER ELEVATION
(TOWARDS RIVER)



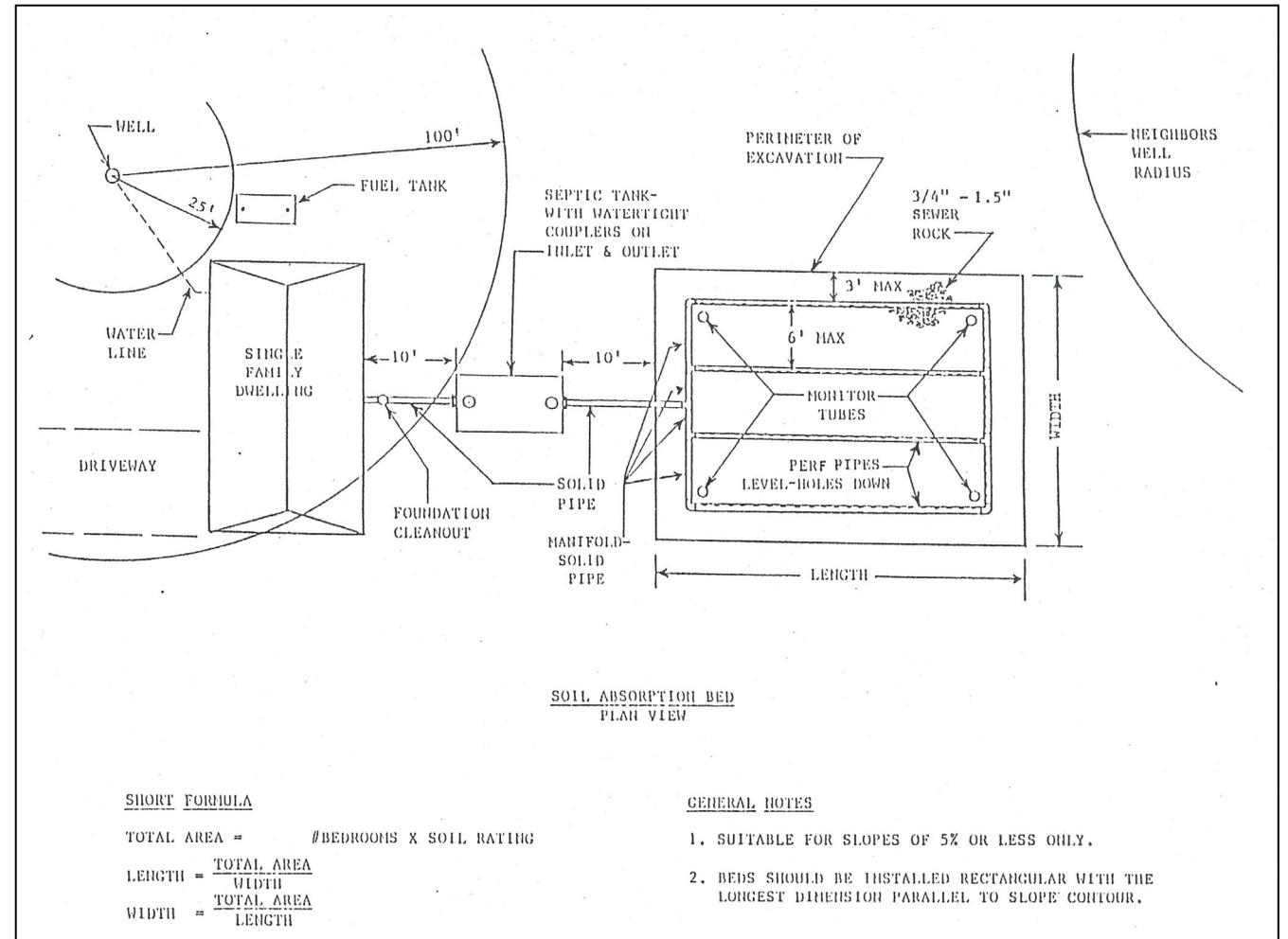
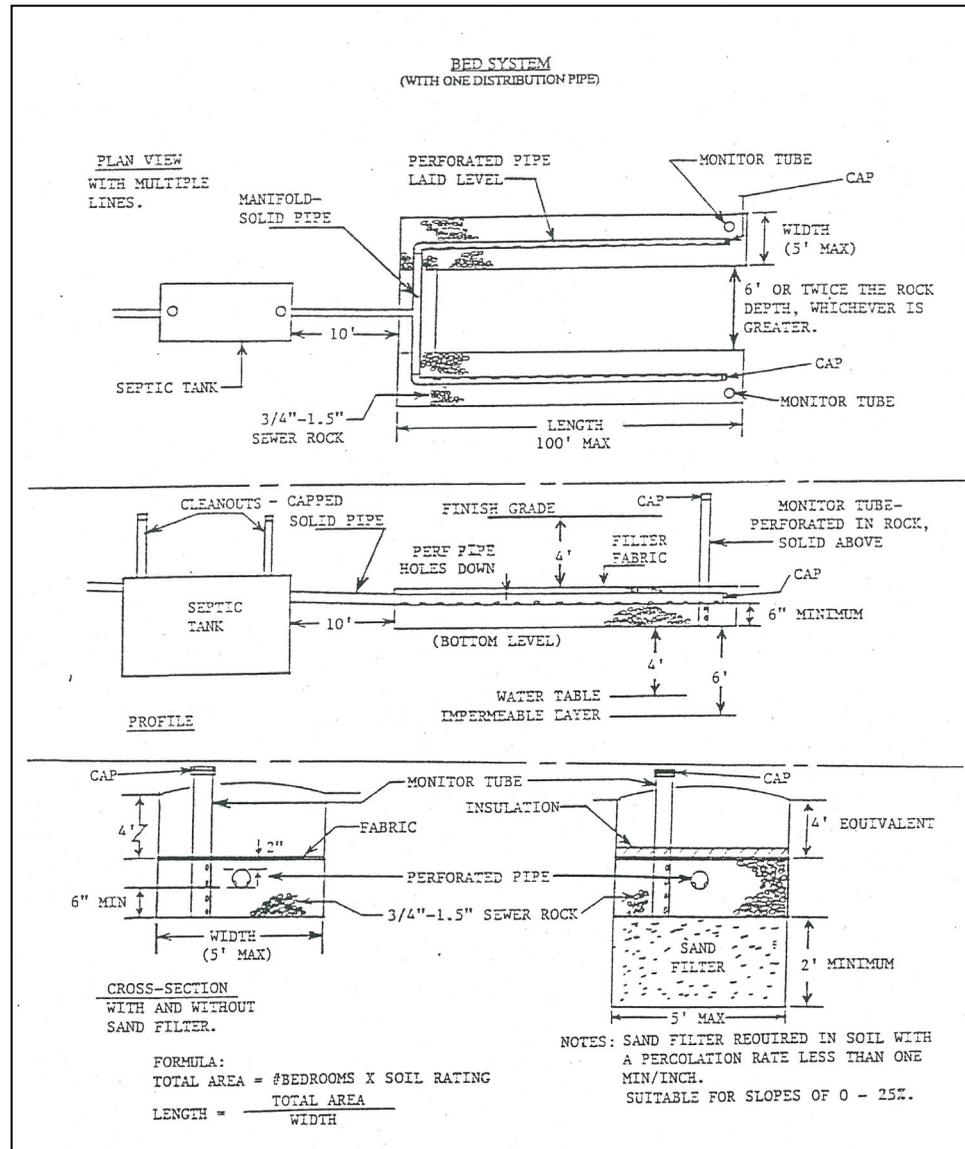


Figure 15 Bed System with One Distribution Pipe

Figure 16 Soil Absorption Bed - Plan View

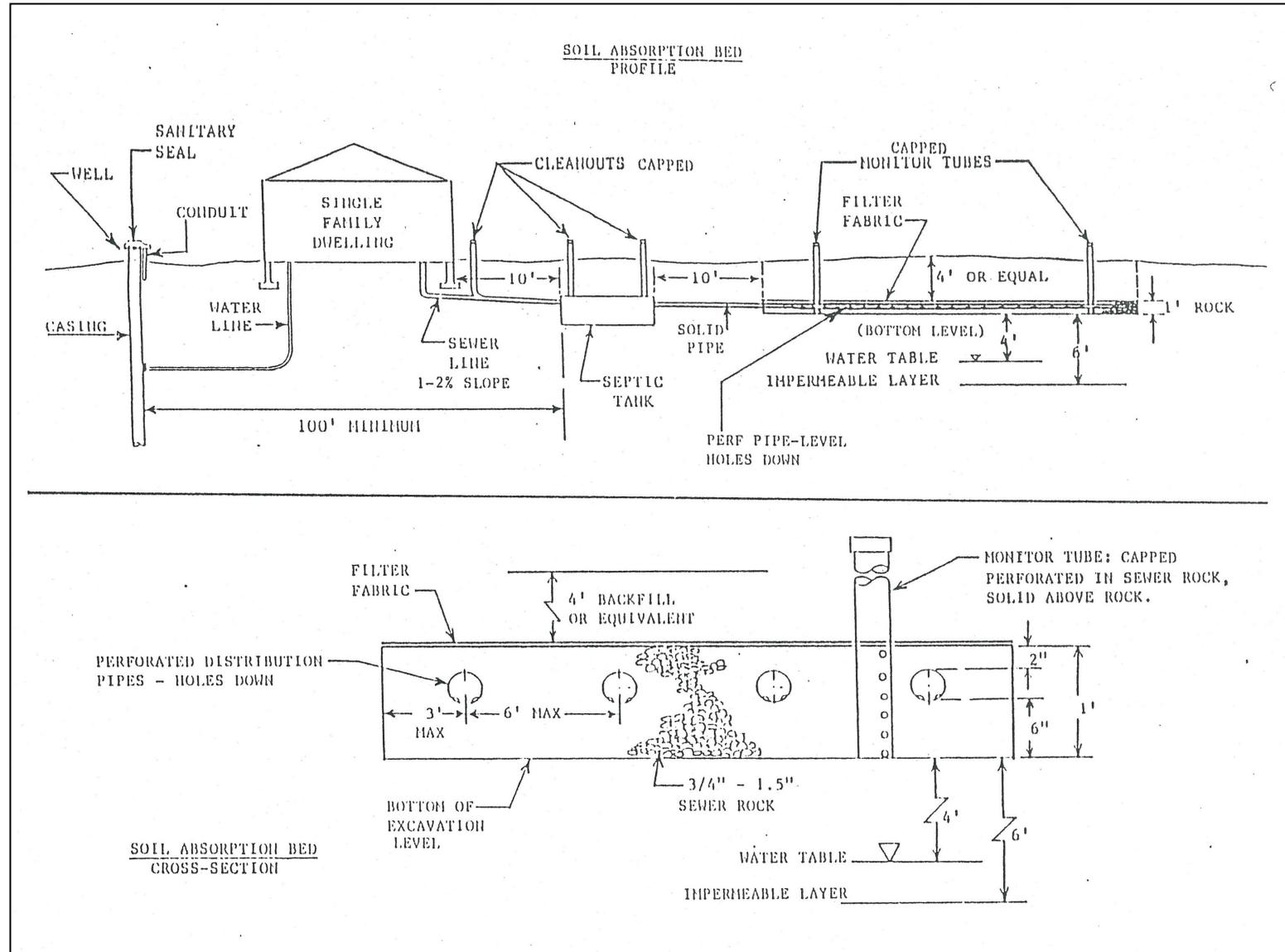


Figure 17 Soil Absorption Bed - Profile

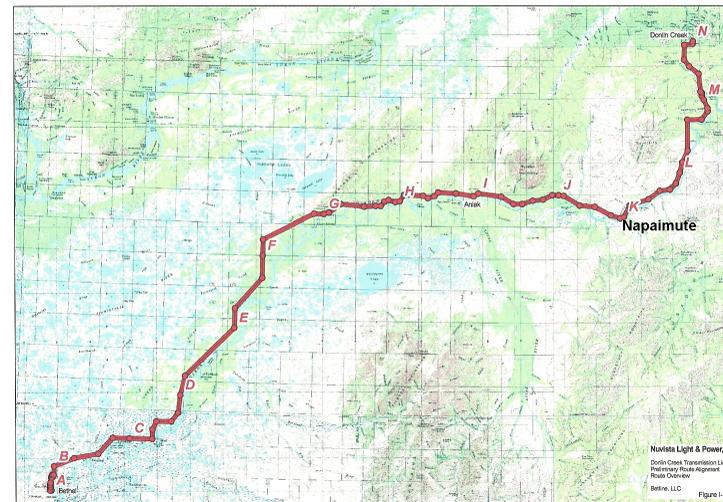
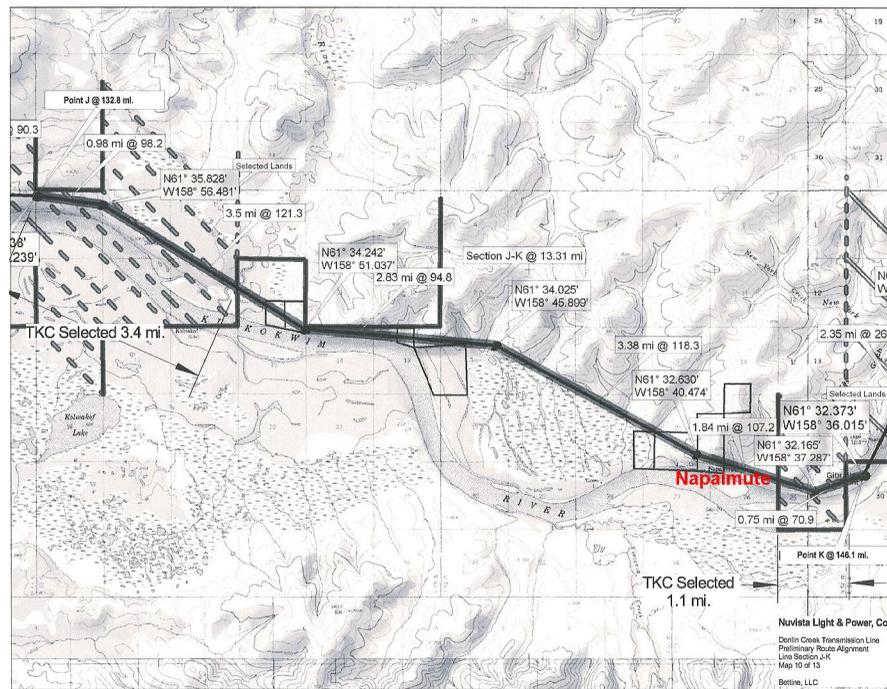
Power Generation

The Napaimute Traditional Council understands that constant, reliable power is necessary for the establishment of a modern community. They believe that alternative energy should be utilized whenever it is feasible.

The proposed power generation and distribution facilities for the community of Napaimute includes power capacity for 8 initial households, one office building and two additional future public or commercial buildings. It is assumed that the power facilities would provide power for an initial population of 25 to 40. There is also a possibility that the community could expand to remote tracts. The power generation and distribution systems should be capable of meeting initial energy requirements as well as allow expansion of the system for future growth at minimal additional expense.

Electrical power facilities would provide distribution subsystems for power plant station service, for the existing village site, and a future village site.

It is unknown whether alternative sources of energy, such as wind or water power may exist in sufficient quantity to provide fuel free production. Alternative sources of energy, if they exist in sufficient dependable quantities, might be a consideration for supplemental energy that could offset fuel costs.



Nuvista preliminary power line route

A report outlining general design considerations for a fuel oil fired power plant, an aerial primary power distribution system, and fuel storage, along with cost estimates, is located in Appendix D. Waste heat (rejected heat) utilization to increase the overall energy efficiency is also an important consideration and the general parameters of a proposed system are outlined.

The General Manager of the Middle Kuskokwim Electrical Cooperative (MKEC) visited Napaimute in August 2003 to investigate the feasibility of providing power. MKEC has expressed an interest in providing permanent power to Napaimute. Another possibility exists; Nuvista, a subsidiary of Calista Corporation, may be running a power line to the Donlin Creek Mine site. The planned route for such a power line runs in the vicinity of Napaimute and it

is possible that Napaimute could be connected to this line. This project is only in the feasibility stage.

Bulk Fuel

The Alaska Energy Authority (AEA) has a bulk fuel storage data base and priority list which includes information on approximately 1,100 tank farms in 171 rural communities. Most of these tank farms have serious deficiencies. To be on the list, year-round residency is a requirement. If Napaimute is unable to be included on the priority list, the Denali Commission may consider funding the project if the community can show they have special needs. Preliminary business plans must be agreed to, and site control attained before the Denali Commission will fund any new energy projects.

Alternative Energy

The Napaimute Traditional Council has also expressed the desire to incorporate an alternate energy component into any power planning for the existing and future community. Solar and wind data for the immediate area have been recorded since 2001 on a remote sensing weather station installed by the Natural Resource Conservation Service. USDA is scheduled to visit Napaimute in 2004 to investigate the possible use of a local stream as a hydro-power source and to inventory the terrain and vegetation.

Potential funding sources are:

- HUD/ICDBG - Grants
- USDA – Rural Development Direct loans
- Dept of Energy's Tribal Energy Program
- USDA Rural Utilities Program
- Denali Commission

The following list gives an overview of alternative energy possibilities:

Biomass Resources. Includes any organic matter available on a renewable basis, including dedicated energy crops and trees, agricultural food and feed crops, agricultural crop wastes and residues, wood wastes and residues, aquatic plants, animal wastes, municipal wastes, and other waste materials. The handling, collection logistics and infrastructure are important aspects of the biomass resource's success. There is a product called a renewable fuel-gas generator that could potentially work well for small communities with small sawmills like Napaimute. A combination of heat and power could be attained through the use of a variety of woody mass materials such as wood chips, pellets, and scraps. Currently, there is a demonstration model being used at a sawmill in Salcha, Alaska through the Community Power Corporation (CPC) and the US Forest Service.

Hydropower. Small-scale hydropower systems generate between 0.01 and 30 megawatts (MW) of electricity. 30 MW generates enough electricity to power nearly 30,000 households. Napaimute's power needs would most likely require no more than 0.02 MW which is sufficient for approximately 200 households.



Hydro-power plant in King Cove

A small hydropower system requires flowing water which is most successful in a hilly or mountainous area. The vertical distance the water falls (otherwise know as "head") and the flow volume are the determining factors for how much power can be obtained from the site. If Napaimute determines that there is a site feasible for a small hydropower system, state and federal agencies need to be contacted regarding permitting requirements.



Photovoltaic/diesel hybrid generator in Lime Village

Solar Power. Solar energy can be used to generate electricity, provide hot water, and to heat, cool, and light buildings. There are many types of solar energy systems available in the market including: photovoltaic (solar cell) systems; passive solar heating, cooling and daylighting systems; concentrating solar power systems; and solar hot water and space heating and cooling systems.

Photovoltaic systems use semiconducting material to absorb solar energy (sunlight) which is converted into electricity. *Concentrating solar power systems* use mirrors to concentrate the sun's heat for electricity generation. *Solar hot water heaters* use the sun to heat either water or a "heat-transfer fluid" which can provide energy-efficient hot water and hot water heat for large sized facilities. *Passive solar and daylighting* focuses on structural design features such as south-facing windows to encourage lower heating costs, natural daylight for lighting, and natural cooling and ventilation.

Alaska Energy Authority recently established a solar power generation system in Lime Village and reports that it is a limited success. They are continuing to upgrade and monitor the system.

Wind Energy. Horizontal or vertical axis wind turbines capture the wind's energy to generate electricity with propeller-like blades mounted on a rotor. Wind turbines can be used for water pumping, communications, or electricity generation if conditions are suitable. It is important that detailed knowledge of the wind at a site is known to estimate the performance of a wind energy project.

Multipurpose Structure

The Traditional Council wants to find the most economical means to meet the service needs of the community. They believe that a multipurpose structure is the most efficient means of accommodating these essential services during the community's initial development. This will alleviate the cost of infrastructure projects; then as the community grows they can move the public facilities to individual structures on an as-needed basis. Facilities that would be necessary to support a small, thriving community include an elder center, community hall, health clinic, school, post office and tribal office.

March 22, 2004 the Council approved a plan for the construction of a 24' X 32' building. Due to the time constraints of a limited construction season, preparation for construction began immediately. A crew was hired to harvest the remainder of the logs needed in an area of TKC land where Napaimute was granted a special community use permit.



Multipurpose structure, one week before completion

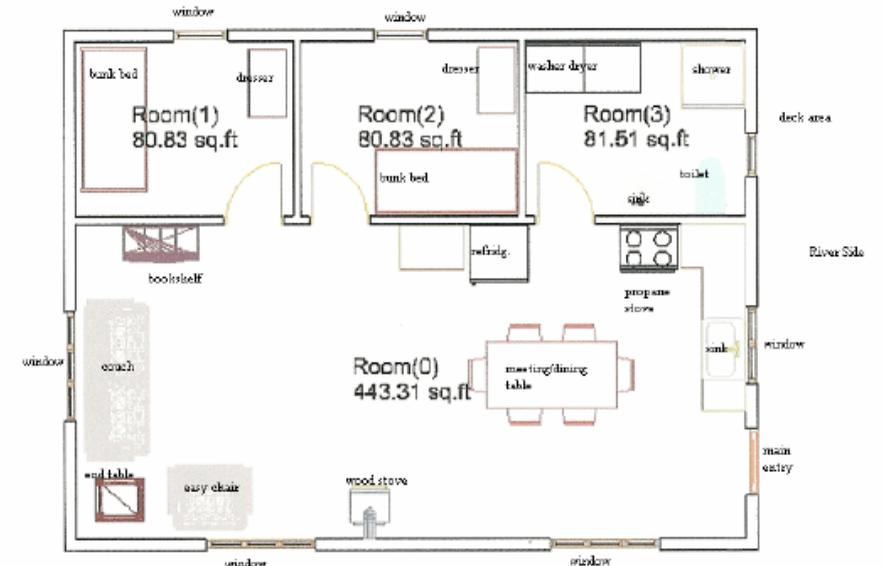


Kalskag logging crew pose with a large log to be milled into a stringer for the Napaimute Community Building.

Additional building supplies were trucked via ice road to 10 miles above Chuathbaluk, then hauled the remaining 10 miles to Napaimute by snow machine.

It is the Council's goal to have this building useable (completed or nearly complete) for the Tribal Gathering in July 2004. In general, the building will be used for employee/public lodging, library (300 books are coming), public phone access, public Internet, and public laundry/shower facilities. It is intended to generate income to sustain maintenance and operating costs and, eventually, as activity in and around Napaimute increases, produce profit.

This project, while relatively small, is a big step for Napaimute and one that the Council has considered very carefully.



24' X 32' Napaimute CMPB (768 sq. ft.) OPTION #3

Layout of multipurpose structure

Long-range Projects

The Traditional Council believes the following projects to be important, but occurring later in the community's development process.

School Contacts

State Department of Education and Early Development

Harry Gambell
(907) 465-2851

Kuspuk School District

Mr. Kim Langton
(907) 675-4250
klangton@ani.kuspuk.org.

School

The State Department of Education and Early Development indicated that the Regional Education Attendance Area (REAA) is responsible for the education of all students within their area unless they live in a first-class city. The REAA for the Napaimute area is the Kuspuk School District. Options for schooling include:

- School district provisions
- Correspondence – provided by Delta, Galena, the Statewide system (that is Alyeska Central School, which may soon be cut by the Governor), or the local school district
- Home schooling

To receive funding from the state for a building and a teacher, the community must have a minimum of 10 students. Once the required student population is established, the community or the district could petition to be placed on the list for building construction. With a qualified person on-site to work with the students, a distance delivery education option could possibly be worked out. There is the possibility of a charter school but there might be a minimum student requirement for that as well. Kuspuk School District officials expressed interest in working with the community to meet the educational needs of Napaimute.

Post Office

According to the United States Post Office, to obtain postal service, a community needs to consist of 25 families or 75 people and in the case of rural Alaska, must have a regular air transportation network.

Roads

The community should consider the following steps to develop a well thought out road system in Napaimute:

Community Master Plan. The location of traffic generators such as the runway, clinic, school, housing and the post office are important when determining the routing of a new road. In most cases, a community master plan is developed for an existing community and updated as the community grows. In Napaimute's case, new development is planned downstream from the seasonally-used village site and there is no existing infrastructure at the proposed site. Therefore, it is important to plan the location of buildings and other uses with the consideration of access potential.

Transportation Plan/ Feasibility Study. The success of obtaining funding for the design and construction of a road project is typically assisted by the completion of a transportation plan and feasibility study. The goal of a transportation plan is to assure that the improvement and development of village roads allows safe and convenient movement of people and goods throughout the community, to subsistence lands, and developed areas outside the village. Through preliminary research, field reconnaissance, environmental clearances, a photo log and a report, a completed feasibility study can make a project more attractive to funding agencies by reducing total project costs and demonstrating community commitment to the project.

Funding. The primary sources of funding for transportation projects in Alaska are the Bureau of Indian Affairs (BIA) roads program or the State of Alaska's Department of Transportation and Public Facilities (ADOT&PF). Both agencies generally receive applications and are highly competitive. Currently, there is discussion concerning Denali Commission administration of a new rural roads program. Funds would likely still be distributed through BIA and ADOT&PF. Should this program receive congressional and administrative approval, it may provide a source of roads funding for Napaimute.

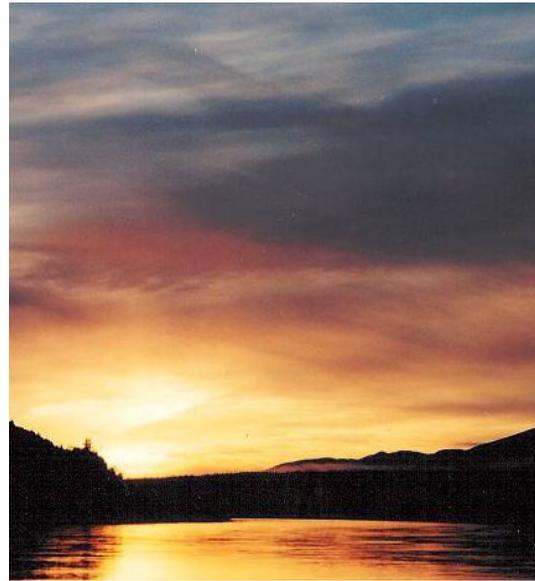
Other funding sources that Napaimute may want to consider for transportation project development include:

- Capital Project Matching Grants through the Alaska Department of Administration,
- Indian Community Development Block Grant Program through HUD,
- the Rasmuson Foundation,
- Community Facilities Guaranteed Loans through the United States Department of Agriculture (USDA) Rural Development,
- the National Cooperative Bank, VSW, and the Denali Commission.

Geotechnical Investigation. Based on alignments proposed in the feasibility study, a geotechnical investigation is the next step in the process. The investigation includes a description of the geology and geography of the area; a field operation plan which includes boring frequencies and depths; proposed equipment utilization; the type, frequency and handling methodology of soil sampling procedures; a laboratory testing plan; geotechnical report, and soil profiles.

Design. The typical final road design includes environmental documentation, survey information, right of way acquirement, hydrology, permitting, utilities, construction plans, clean water consideration, a plan-in-hand review, public hearings, engineer's cost estimate, and design specifications.

Construction. The construction of a road project entails the negotiation of scope and contracts with funding agencies, procuring project materials and equipment and establishing budgets. An important aspect of the construction project is the utilization of local resources to maximize the economic benefit of construction projects within the community.



Appendix A ANCSA Land Conveyance

Alaska Native Claims Settlement Act Conveyance of lands 43 U.S.C. § 1613

(a) **Native villages listed in section 1610 and qualified for land benefits; patents for surface estates; issuance; acreage.** Immediately after selection by a Village Corporation for a Native village listed in section 1610 of this title which the Secretary finds is qualified for land benefits under this chapter, the Secretary shall issue to the Village Corporation a patent to the surface estate in the number of acres shown in the following table:

If the Village had on the 1970 census enumeration date a Native population between	It shall be entitled to a patent to an area of public lands equal to
25 and 99	69,120 acres.
100 and 199	92,160 acres.
200 and 399.....	115,200 acres.
400 and 599	138,240 acres.
600 or more	161,280 acres.

The lands patented shall be those selected by the Village Corporation pursuant to section 1611(a) of this title. In addition, the Secretary shall issue to the Village Corporation a patent to the surface estate in the lands selected pursuant to section 1611(b) of this title.

(b) **Native villages listed in section 1615 and qualified for land benefits; patents for surface estates; issuance; acreage.** Immediately after selection by any Village Corporation for a Native village listed in section 1615 of this title which the Secretary finds is qualified for land benefits under this chapter, the Secretary shall issue to the Village Corporation a patent to the surface estate to 23,040 acres. The lands patented shall be the lands within the township or townships that enclose the Native village, and any additional lands selected by the Village Corporation from the surrounding townships withdrawn for the Native village by section 1615(a) of this title.

(c) Patent requirements; order of conveyance; vesting date; advisory and appellate functions of Regional Corporations on sales, leases, or other transactions prior to final commitment. Each patent issued pursuant to subsections (a) and (b) of this section shall be subject to the requirements of this subsection. Upon receipt of a patent or patents:

(1) the Village Corporation shall first convey to any Native or non-Native occupant, without consideration, title to the surface estate in the tract occupied as of December 18, 1971 (except that occupancy of tracts located in the Pribilof Islands shall be determined as of the date of initial conveyance of such tracts to the appropriate Village Corporation) as a primary place of residence, or as a primary place of business, or as a subsistence campsite, or as headquarters for reindeer husbandry;

(2) the Village Corporation shall then convey to the occupant, either without consideration or upon payment of an amount not in excess of fair market value, determined as of the date of initial occupancy and without regard to any improvements thereon, title to the surface estate in any tract occupied as of December 18, 1971, by a nonprofit organization;

(3) the Village Corporation shall then convey to any Municipal Corporation in the Native village or to the State in trust for any Municipal Corporation established in the Native village in the future, title to the remaining surface estate of the improved land on which the Native village is located and as much additional land as is necessary for community expansion, and appropriate rights-of-way for public use, and other foreseeable community needs: Provided, That the amount of lands to be transferred to the Municipal Corporation or in trust shall be no less than 1,280 acres unless the Village Corporation and the Municipal Corporation or the State in trust can agree in writing on an amount which is less than one thousand two hundred and eighty acres: Provided further, That any net revenues derived from the sale of surface resources harvested or extracted from lands reconveyed pursuant to this subsection shall be paid to the Village Corporation by the Municipal Corporation or the State in trust: Provided, however, That the word "sale", as used in the preceding sentence, shall not include the utilization of surface resources for governmental purposes by the Municipal Corporation or the State in trust, nor shall it include the issuance of free use permits or other authorization for such purposes;

(4) the Village Corporation shall convey to the Federal Government, State, or to the appropriate Municipal Corporation, title to the surface estate for airport sites, airway beacons, and other navigation aids as such existed on December 18, 1971, together with such additional acreage and/or easements as are necessary to provide related governmental services and to insure safe approaches to airport runways as such airport sites, runways, and other facilities existed as of December 18, 1971; and

(5) for a period of ten years after December 18, 1971, the Regional Corporation shall be afforded the opportunity to review and render advice to the Village Corporations on all land sales, leases or other transactions prior to any final commitment.

There is authorized to be appropriated such sums as may be necessary for the purpose of providing technical assistance to Village Corporations established pursuant to this chapter in order that they may fulfill the reconveyance requirements of this subsection. The Secretary may make funds available as grants to ANCSA or nonprofit corporations that maintain in-house land planning and management capabilities.

(d) **Rule of approximation with respect to acreage limitations.** The Secretary may apply the rule of approximation with respect to the acreage limitations contained in this section.

(e) **Surface and/or subsurface estates to Regional Corporations.** Immediately after selection by a Regional Corporation, the Secretary shall convey to the Regional Corporation title to the surface and/or the subsurface estates, as is appropriate, in the lands selected.

(f) **Patents to Village Corporations for surface estates and to Regional Corporations for subsurface estates; excepted lands; mineral rights, consent of Village Corporations.** When the Secretary issues a patent to a Village Corporation for the surface estate in lands pursuant to subsections (a) and (b) of this section, he shall issue to the Regional Corporation for the region in which the lands are located a patent to the subsurface estate in such lands, except lands located in the National Wildlife Refuge System and lands withdrawn or reserved for national defense purposes, including Naval Petroleum Reserve Numbered 4, for which in lieu rights are provided for in section 1611(a)(1) of this title: Provided, That the right to explore, develop, or remove minerals from the subsurface estate in the lands within the boundaries of any Native village shall be subject to the consent of the Village Corporation.

(g) **Valid existing rights preserved; saving provisions in patents; patentee rights; administration; proportionate rights of patentee.** All conveyances made pursuant to this chapter shall be subject to valid existing rights. Where, prior to patent of any land or minerals under this chapter, a lease, contract, permit, right-of-way, or easement (including a lease issued under section 6(g) of the Alaska Statehood Act) has been issued for the surface or minerals covered under such patent, the patent shall contain provisions making it subject to the lease, contract, permit, right-of-way, or easement, and the right of the lessee, contractee, permittee, or grantee to the complete enjoyment of all rights, privileges, and benefits thereby granted to him. Upon issuance of the patent, the patentee shall succeed and become entitled to any and all interests of the State or the United States as lessor, contractor, permitter, or grantor, in any such leases, contracts, permits, rights-of-way, or easements covering the estate patented, and a lease issued under section 6(g) of the Alaska Statehood Act shall be treated for all purposes as though the patent had been issued to the State. The administration of such lease, contract, permit, right-of-way, or easement shall continue to be by the State or the United States, unless the agency responsible for administration waives administration. In the event that the patent does not cover all of the land embraced within any such lease, contract, permit, right-of-way, or easement, the patentee shall only be entitled to the proportionate amount of the revenues reserved under such lease, contract, permit, right-of-way, or easement by the State or the United States which results from multiplying the total of such revenues by a fraction in which the numerator is the acreage of such lease, contract, permit, right-of-way, or easement which is included in the patent and the denominator is the total acreage contained in such lease, contract, permit, right-of-way, or easement.

(h) **Authorization for land conveyances; surface and subsurface estates.** The Secretary is authorized to withdraw and convey 2 million acres of unreserved and unappropriated public lands located outside the areas withdrawn by sections 1610 and 1615 of this title, and as follows:

(1) The Secretary may withdraw and convey to the appropriate Regional Corporation fee title to existing cemetery sites and historical places. Only title to the surface estate shall be conveyed for lands located in a Wildlife Refuge, when the cemetery or historical site is greater than 640 acres.

(2) The Secretary may withdraw and convey to a Native group that does not qualify as a Native village, if it incorporates under the laws of Alaska, title to the surface estate in not more than 23,040 acres surrounding the Native group's locality. The subsurface estate in such land shall be conveyed to the appropriate Regional Corporation unless the lands are located in a Wildlife Refuge;

(3) The Secretary may withdraw and convey to the Natives residing in Sitka, Kenai, Juneau, and Kodiak, if they incorporate under the laws of Alaska, the surface estate of lands of a similar character in not more than 23,040 acres of land, which shall be located in reasonable proximity to the municipalities. The subsurface estate in such lands shall be conveyed to the appropriate Regional Corporation unless the lands are located in a Wildlife Refuge;

(4) The Secretary shall withdraw only such lands surrounding the Villages and municipalities as are necessary to permit the conveyance authorized by paragraphs (2) and (3) to be planned and effected;

(5) The Secretary may convey to a Native, upon application within two years from December 18, 1971, the surface estate in not to exceed 160 acres of land occupied by the Native as a primary place of residence on August 31, 1971. Determination of occupancy shall be made by the Secretary, whose decision shall be final. The subsurface estate in such lands shall be conveyed to the appropriate Regional Corporations unless the lands are located in a Wildlife Refuge;

(6) The Secretary shall charge against the 2 million acres authorized to be conveyed by this section all allotments approved pursuant to section 1617 of this title during the four years following December 18, 1971. Any minerals reserved by the United States pursuant to the Act of March 8, 1922 (42 Stat. 415), as amended, in a Native Allotment approved pursuant to section 1617 of this title during the period December 18, 1971, through December 18, 1975, shall be conveyed to the appropriate Regional Corporation, unless such lands are located in a Wildlife Refuge or in the Lake Clark areas as provided in section 12 of the Act of January 2, 1976 (Public Law 94-204), as amended.

(7) The Secretary may withdraw and convey lands out of the National Wildlife Refuge System and out of the National Forests, for the purposes set forth in paragraphs (1), (2), (3), and (5) of this subsection; and

(8)(A) Any portion of the 2 million acres not conveyed by this subsection shall be allocated and conveyed to the Regional Corporations on the basis of population.

(B) Such allocation as the Regional Corporation for southeastern Alaska shall receive under this paragraph shall be selected and conveyed from lands that were withdrawn by sections 1615(a) and 1615(d) of this title and not selected by the Village Corporations in southeastern Alaska; except lands on Admiralty Island in the Angoon withdrawal area and, without the consent of the Governor of the State of Alaska or his delegate, lands in the Saxman and Yakutat withdrawal areas are not available for selection or conveyance under this paragraph.

(9) Where the Regional Corporation is precluded from receiving the subsurface estate in lands selected and conveyed pursuant to paragraph (1), (2), (3), or (5), or the retained mineral estate, if any, pursuant to paragraph (6), it may select the subsurface estate in an equal acreage from other lands withdrawn for such selection by the Secretary, or, as to Cook Inlet Region, Incorporated, from those areas designated for in lieu selection in paragraph I.B.(2) of the document identified in section 12(b) of Public Law 94-204.

Selections made under this paragraph shall be contiguous and in reasonably compact tracts except as separated by unavailable lands, and shall be in whole sections, except where the remaining entitlement is less than six hundred and forty acres. The Secretary is authorized to withdraw, up to two times the Corporation's entitlement, from vacant, unappropriated, and unreserved public lands, including lands solely withdrawn pursuant to section 1616(d)(1) of this title, and the Regional Corporation shall select such entitlement of subsurface estate from such withdrawn lands within ninety days of receipt of notification from the Secretary.

(10) Notwithstanding the provisions of section 1621(h) of this title the Secretary, upon determining that specific lands are available for withdrawal and possible conveyance under this subsection, may withdraw such lands for selection by and conveyance to an appropriate applicant and such withdrawal shall remain until revoked by the Secretary.

(11) For purposes set forth in paragraphs (1), (2), (3), (5), and (6) of this subsection, the term Wildlife Refuges refers to Wildlife Refuges as the boundaries of those refuges exist on December 18, 1971.

Appendix B Power Generation and Distribution Report

NAPIAMUTE POWER GENERATION AND DISTRIBUTION

The proposed power generation and distribution facilities for the community of Napaimute includes power capacity for 8 initial households, one office building and two additional future public or commercial buildings. It is assumed that the power facilities would provide power for an initial population of 25 to 40. There is also a possibility that the community could expand to remote tracts. The power generation and distribution systems should be capable of meeting initial energy requirements as well as allow expansion of the system for future growth at minimal additional expense.

Electrical power facilities would provide distribution subsystems for power plant station service, for the existing village site, and a future village site.

It is unknown whether alternative sources of energy, such as wind or water power may exist in sufficient quantity to provide fuel free production. Alternative sources of energy, if they exist in sufficient dependable quantities, might be a consideration for supplemental energy that could offset fuel costs.

This report outlines general design considerations for a fuel oil fired power plant, an aerial primary power distribution system, and fuel storage. Waste heat (rejected heat) utilization to increase the overall energy efficiency is also an important consideration and the general parameters of a proposed system will be outlined.

POWER PLANT CONFIGURATIONS

Several options exist for power plant configuration. The most conventional configuration for prime power production includes generation adequate to supply the peak demand load with an additional 100% reserve capacity to anticipate failure or need to shut down and maintain equipment while maintaining uninterrupted power. A second option is to provide a single generator with rated capacity equal to the anticipated peak demand. With this option, it is generally necessary to either limit the hours of plant production each day, or to schedule routine outages to provide generator maintenance.

Plant configuration under the first option is typically achieved with one large unit of sufficient size to independently provide peak power demand, and two small units, each with approximately one-half the capacity of the large unit. Generators can be operated in parallel (two or more generators simultaneously producing power on a common power supply bus). This allows generators to be shut down for maintenance while still maintaining full production. Since generators operate most efficiently at their full rated capacity, employing the small units while power demand is reduced, will increase plant efficiency and reduce production costs.

Plant configuration under the second option will greatly reduce initial costs but will result in less plant efficiency (increase fuel usage), require routine outages for plant maintenance and the chance of unexpected outages when unforeseen problems occur. Depending on maximum/minimum load conditions, there can also be increased maintenance and reduced life expectancy of the generator as further explained below.

GENERAL DESIGN CONSIDERATIONS

The generated power should be reliable and of high quality. Optimum plant configuration is a multiple generator plant (three or more units) that would allow operation of each generator at as close to its prime power rating as possible. Switchgear and controls should be capable of allowing full operation of the power plant in either manual or automatic mode. Electronic governors and utility grade protective relaying should be incorporated into the power plant to assure power of high quality and reliability.

These general specifications can be difficult to meet in small prime power plants since most equipment of the size required for the proposed power plant, are generally designed for portable, standby or emergency generation, and are not designed as prime power units. Emergency/standby generator sets accumulate very low hours of operation over years of service and are often replaced long before their accumulated hours of operation warrants. With this in mind, manufacturer's can be more competitive by designing less expensive equipment for emergency/standby use that may not withstand the rigors of continuous operation as required in prime power plants.

An additional challenge in designing a power plant for a small isolated community is the lack of diversity in power demand. Large communities have a highly diversified load which means that the power load becomes fairly uniform with minor daily and seasonal power swings. The "base load" or minimum power demand recorded at large power plants is a relatively high percentage of the peak demand. Base load in power plants serving a small isolated community is a relatively low percentage of the peak power demand. Small community power plants have large daily and seasonal power swings and there is greater challenge in both design and operation of small prime power plants to optimize efficiency. Additionally, load shifts due to motors and appliances switching on and off, that may be insignificant in large utilities, have a significant impact on small power plants. Load shifts in small power plants results in fluctuating line frequency that affects the accuracy of electric clocks. Larger electric motors should be specified with electronic "soft" starters to reduce this impact.

In general, diesel generator sets operate most efficiently at their prime power ratings. There is an additional penalty in increased maintenance costs if generators are operated significantly below their prime power ratings. Carbon precipitates and builds up in the combustion chambers due to reduced combustion chamber temperatures in diesel engines

that operate at low power demand for extended time periods. This carbon will eventually bond to piston rings, combustion chamber surfaces, injector nozzles and valve seats impairing engine performance and leading to premature engine overhaul. The design and operation of the diesel power plant, to maintain optimum loads on each generator, is very critical in decreasing both energy costs and plant maintenance costs. Cummins Northwest, a large supplier of generator sets, reports that as long as their generators maintain a sustained load greater than one-third of its rated load, there is generally no mechanical problem due to carbon build up.

Several options are available for fueling the generators. The most common practice in interior Alaska is to burn #1 fuel oil during the winter and #2 fuel oil in the summer. #2 fuel oil has the advantages that it is less refined and therefore cheaper by the gallon. #2 fuel oil also contains more energy per gallon and has greater lubricity and therefore reduces wear in fuel system components. The cloud point of #2 fuel oil is approximately 8° F, at which point the fuel begins to gel, and is unusable below 0° F. #1 fuel oil has a cloud point of about -62° F but as indicated above, costs more, has less heat value and less lubricity. For purposes of this proposal, it is assumed that both #1 and #2 fuel oil will be stored for annual use.

Estimate of energy consumption

Estimates of annual energy consumption, minimum power demand (base load) and peak power demand (peak load) varies with ambient temperatures, cost of electricity, and average household income. It is assumed that electricity will be used for lighting, mechanical and general power loads and for powering non-heating appliances. It is also assumed that propane cooking appliances, which are generally less costly to operate than electrical appliances in rural Alaska, will be used. Likewise, it is assumed that direct fuel fired water heaters, will be used.

Based on 8 households and 3 public buildings (population of approximately 30), the estimated base load power demand is 10 kilowatts (kW). It is estimated that normal peak winter loads will be approximately 35 to 40 kW. Abnormal peak load conditions could occur at extreme cold temperature conditions with power expected to exceed the normal peak by 20% or a maximum anticipated plant demand of 40 kW to 50 kW.

Fuel demand for the generators would be approximately 13 kilowatt-hours (kWh) per gallon of #2 fuel oil and approximately 11.5 kWh per gallon of #1 fuel oil. Distribution losses are estimated to be 5% to 10% resulting in a further reduction in fuel efficiency of one kWh of delivered (billed) energy per gallon. #2 fuel oil could probably be used five months out of the year. #1 fuel oil and blended #2 fuel oil would be required during the remainder of the year.

Estimating an average load of 15 kW during the five warm months of the year would account for 54,000 kWh of billed energy during this period. During this season, estimated fuel consumption is 4200 gallons of #2 fuel oil. During the remaining seven cold months of the year, total energy consumption is estimated at 126,000 kWh, for an average demand of 25 kW. Estimated consumption of #1 fuel during the seven cold months, is 11,000 gallons.

The above energy consumption estimate is based on consumption of larger more diverse communities, scaled to the population of Napaimute. Energy consumption could vary considerably depending on the collective habits of the population. In such a limited population, a reasonable mode of operation might allow operation of the plant for limited hours during the day with the plant shut down each night.

FUEL STORAGE

There is an existing 5,000 gallon tank on site which is filled by pulling a fill hose from the barge and delivering at the top of the tank. It is presumed that this method would also be used to fuel the new tanks.

Based on the above energy estimate, new storage facilities would require a single 5,000 gallon tank for #2 fuel oil storage and a 15,000 gallon tank for #1 fuel oil storage. Reiterating the above comment that energy consumption for this size of community is difficult to predict, smaller fuel storage of #1 fuel might initially be provided. Additional tanks could be provided in the future as the need arises.

Typically a community fuel storage facility would require a spill retention dike and liner. For this size of facility, however, double wall tanks are possibly be more economical. Current environmental statutes would need to be investigated to determine whether common spill retention would be required and if there is a statutory requirement for a spill prevention plan to be in place prior to operation.

POWER PLANT DESIGN (MULTIPLE GENERATOR SETS)

As stated above, base power load for the community would be approximately 10 kW and anticipated peak load would be 40 kW. Average summer and winter demands are estimated at 15 kW and 25 kW respectively. Average estimated demand throughout the year is 21 kW.

An optimum power plant configuration for continuous operation, to accommodate both summer and winter loads, would require three generator sets. Two smaller units would each be sized at 20 kW or about twice the base load. A single large unit with 40 kW prime power rating would provide peak winter load. Each unit would also be provided with a standby rating which would allow the generator to operate for brief periods of time beyond its standby rating. This would allow a unit to be operated at close to its prime power rating before bringing an additional unit on line. Power swings could be handled by the unit within its standby capability without a resultant power outage due to generator overload.

The preliminary plan, as shown on the drawings, indicates units generating at 480 volt delta (or 480 volt ungrounded wye), 3-wire. Plant grounding, which would consist of multiple ground rods interconnected by a buried perimeter ground conductor ring and/or grid system, would connect all equipment frames, steel building members, foundation reinforcement, station service neutral and distribution system neutral. Power for power plant station service and for the village distribution system would be derived from substation transformers with delta connected primary coils and grounded wye connected secondary coils. This configuration would isolate and protect the generators from high ground currents that may result from faults or lightning strikes occurring in the distribution system. The power plant would be further protected by lightning arrestors connected to the distribution at the power plant.

Fuel would be maintained to the units with a day tank supplied by duplex, automatic transfer pumps, housed inside the power plant. The transfer pumps would deliver fuel from outside storage tanks to inside day tank. A 25 gallon day tank would provide approximately 10 hours of fuel at peak winter loads.

With location of the power plant proximal to residences, the units should be specified with “super critical” or “hospital grade” mufflers. Such mufflers provide 25 dbA to 45 dbA sound attenuation throughout the audible spectrum. Super critical grade mufflers as well as good quality thermal/acoustical building insulation will minimize the annoyance of the constant drone of the power plant.

Drawings, sheets E1 and E2 illustrate a basic power plant layout. A 32’ x 46’ building would provide adequate space for the initial power plant with an additional bay for a future generator set to support community growth. The size of the proposed generator room would also allow for existing units to be replaced with larger units as required to accommodate growth.

The generator sets should be specified with automatic paralleling capability and with programmable controls that allow units to automatically start up, synchronize with the other unit(s) and be closed on line and share power isochronously (equally). Electronic governors should be specified with load sharing capability and with automatic quartz frequency controllers that would automatically compensate for rises and falls in frequency, above and below 60 Hertz (Hz), and would continuously adjust engine speed to maintain precise bus time control. Such controls would allow the units to maintain proper speed and bus frequency without the need for continual operator intervention.

PROTECTIVE RELAYING (MULTIPLE GENERATOR SETS)

An important consideration is the provision of protective devices that not only protect the valuable equipment in the power plant but also assure delivery of power of satisfactory quality.

Drawing 1/E1 shows recommended protective relays and devices to safeguard the generators and other power plant equipment, and to mitigate abnormal situations that would result in delivery of substandard power quality. In the past, such devices were generally stand-alone, single feature relays and controls. Today, most manufacturers of utility grade protective devices have combined the various devices into single, multipurpose modules at a substantial reduction in cost.

The plan shows unitized switchgear in a separate control room. In this configuration, engine controls, voltage regulators, protective devices and unit circuit breakers are installed in each switch section. This configuration allows greater ease of operator monitoring and intervention. It also allows more flexibility in specifying controls and protective relaying to meet a higher standard of quality. This comes however at higher initial cost. Since it is typical for small generators to be provided with unit mounted engine control, electronic governor, voltage regulator, automatic paralleling and protective relaying, a significant savings would be realized by incorporating all of these controls as unit mounted devices and eliminate the free standing unit switchgear. This would also decrease the size required for the power plant building.

POWER PLANT DESIGN (SINGLE GENERATOR SET)

Several options exist for a single generator power plant. The generator can either be housed inside of a lighted and heated walk-in enclosure or the generator can be specified to include an insulated, self-contained enclosure supplied by the manufacturer. Such self-contained enclosures are typically referred to as a “quiet side” enclosures with thermal/acoustical insulation to maintain wintertime operability. A single generator in a quiet side enclosure is the least initial cost but also allows the least flexibility for future growth. The walk-in enclosure could be constructed large enough to allow adding additional generators as the community grows allowing maximum flexibility with the added cost of the building.

Whether installed in a walk-in enclosure or in a “quiet side” enclosure, the generator would be typically specified with unit mounted generator controls that would include unit circuit breaker, electronic governor, engine controller, shut-downs, instrumentation and protective relays. Engine heater, batteries, battery charger, exhaust system and day tank are also provided in the package.

Operation of a single generator plant would require routine shutdown for maintenance. If a daily operation schedule was incorporated, plant maintenance could be performed at night when the generators are shut down, without unexpected outages or the requirement of public announcements for such outages.

With community growth, there will probably be greater expectation of uninterrupted power and consideration would have to be given to provide additional generators. It would also be necessary to provide generator paralleling equipment so generators could be connected to line without interrupting power.

METERING

Monitoring power plant efficiency has become a requirement in order to participate in public programs such as Power Cost Equalization (PCE). Recorded power plant efficiency is also an important reporting tool if the community competes in grant acquisition for facilities upgrades. In order to determine power plant efficiency, energy produced at the plant needs to be compared with total energy delivered (billed energy). This calculation requires a combination of billing meters at each service and meters in the power plant that measure energy produced. A combination watt-hour and demand metering registers should be provided to monitor the production of each generator set and the delivery of power at each feeder. The specification of this metering should follow the requirements the Alaska Energy Authority, but would employ either electronic power monitors or simpler, less expensive watt-hour meters with demand registers.

WASTE HEAT UTILIZATION

Of the total fuel energy burned in the combustion chambers of the generator sets, approximately 1/3 is converted to mechanical energy for turning the generator, 1/3 is heat rejected in the engine jacket cooling water, and the final 1/3 is heat rejected in exhaust gasses. Utilization of rejected heat (waste heat) is generally worth consideration in a multiple power plant configuration with continuous power production and if the power plant location is near community buildings. A second option for waste heat utilization is to provide heat to warm stored fuel oil during the high demand winter months. Heating stored fuel oil would allow the year around use of a lower grade (#2) fuel oil with a resulting savings in energy costs.

A schematic waste heat system is shown in drawing 2/E2. This system utilizes a single heat exchanger that cools all three units. The unit radiators are isolated from the generators and are inter-connected by common supply and return manifolds from the heat exchanger. A thermostatically operated, 3-port valve bypasses coolant flow to the radiators if coolant temperature exceeds a high set-point temperature. Radiator cooling fans are powered by electric motors and operated by thermostats connected to the coolant bypass manifolds. In the event that the heat exchanger requires service, the waste heat manifolds can be isolated and valves in radiator bypass lines can allow each unit to be cooled directly by the unit radiator.

The consideration in the proposed waste heat system is to capture only the rejected cooling water heat. It is also possible to capture rejected exhaust heat by installing waste heat mufflers. The specification of waste heat mufflers is very critical however because excessive reduction of exhaust heat will result in precipitation and build up of soot in the muffler. This will necessitate frequent maintenance and is probably the reason that this form of waste heat recovery is not typically employed.

It is important that the heating systems of buildings intending to utilize waste heat, be designed around this use. The quality (glycol temperature) of hydronic heat delivered through waste heat systems is typically lower than that produced by local boilers. To successfully implement utilization of waste heat, buildings need to be designed with additional fin tube to utilize the lower temperature glycol. With this in mind, the set-point temperature of boilers can be adjusted below the delivery temperature of the district heat

and therefore will only be called upon to supplement additional heat demand beyond that which the waste heat system can deliver. Assuming waste heat could be recovered and delivered at 30% efficiency, an estimated 1,200 to 1,500 gallons of fuel oil would be saved annually.

AUTOMATIC OIL MAINTENANCE SYSTEM

Several manufacturers produce systems that continually monitor oil level in engine crankcases with an electronic level sensing probe. As an engine consumes oil, the automatic system incrementally replenishes the oil to maintain proper level.

These systems are also programmed for an automatic oil change interval. Once set, the system periodically pumps out an incremental quantity of crankcase oil, injects the used oil into the fuel supply line, and replenishes the crankcase with an equal quantity of fresh oil. This system maintains proper crankcase level without operator intervention, alleviates the need to shut down the generator for oil changes, maintains a constant oil quality in the engine, and alleviates the need for storage and disposal of waste oil.

DISTRIBUTION SYSTEM

The preliminary plan calls for a 12.47 kilovolt (kV), wye connected distribution system. Although power requirements for a community of this size would allow distribution at a lower voltage, equipment for lower voltage systems that once were common place, is now difficult and generally more expensive to obtain. Higher voltage systems allow the use of smaller conductor size, lighter weight systems, contribute to higher distribution efficiency, and greater ease in expanding the system.

Although underground distribution systems have increased in popularity over the years due to increased reliability and reduced relative costs of underground conductor, an aerial system would be generally be less costly to build and maintain. Consideration of either underground or aerial power lines should be based on the availability of construction equipment in the community and on soil conditions.

An aerial system would generally require a drilling rig. If a drilling rig is not available in the village, there is considerable cost in mobilization. If a backhoe or other trenching equipment is available, and soil conditions are generally good, a buried system may be less expensive.

Two each, three-phase, pole mounted, transformers located outside of the power plant, converts the 480 volt delta, plant generated power, to 12.47 kV grounded wye, 4-wire, distributed power. The preliminary plan provides two distribution feeders, #1 and #2. Initially, Feeder #2 would provide backup (redundancy) for Feeder #1 via a normally open switch between the two feeders. Feeder #2 would eventually serve the future community site. A normally open switch between the two feeders would allow either feeder to be connected to the other in the event of a failure.

CONSTRUCTION COST ESTIMATE (MULTIPLE GENERATOR POWER PLANT)

A scale of magnitude construction cost estimate for the power facilities, including a single-story building that is approximately 32 feet by 48 feet with generators, unitized switchgear, ancillary equipment and distribution system per the above proposal is \$1,400,000

Costs of the distribution system are estimated based on serving the existing village site including the installation of 10 secondary services. It is assumed the initial system will be approximately one mile in length to serve the initial village site. The cost estimate also includes the installation of 10 secondary services.

The itemization below includes materials and equipment, delivered and installed under construction contract. These costs may be significantly reduced if the project is completed by force account.

COST ESTIMATE

Refer to attached spread sheet outlining costs of various power plant options.

Appendix C Alaska Homestead Act Regulations

AS 38.09.010. Designation of Land for Homestead Entry.

- (a) The commissioner shall designate and make available for homestead entry state land, including, after consulting with the Board of Agriculture and Conservation (AS [03.09.010](#)), land classified for agricultural use. State land made available for homestead entry under this chapter shall be distributed throughout the state.
- (b) The commissioner shall complete a rectangular survey grid of homestead entry state land under AS [38.04.045](#) before disposing of state land for homestead entry. A homestead entry parcel shall be established in aliquot parts of a surveyed section or as lots or tracts that are fractions of aliquot parts of a surveyed section. The commissioner shall ensure practical access to each homestead entry parcel but the commissioner may waive the rectangular survey grid if no more than one conveyance is made for each section within a township.
- (c) Notice of the designation and offering of land for homestead entry shall be given by the commissioner under AS [38.05.945](#).
- (d) Land designated for homestead entry is not subject to a preference right under AS [38.05](#).
- (e) The commissioner shall prescribe a homestead entry procedure for each area designated under (a) of this section. The homestead entry procedure shall establish
- (1) the minimum distance between homestead entries in the area;
 - (2) the dimensions, configuration, orientation, or other design requirements for a homestead entry in the area;
 - (3) a description of land within the area that may not be included in a homestead entry;
 - (4) a requirement that a landmark, monument, or other point be used as a point of reference for the measurement of distances within an area;
 - (5) a specification of the type of stakes to be used to mark the corners of a homestead entry;
 - (6) the time within which a homestead entry must be staked.
- (f) The commissioner shall establish the maximum size of a homestead entry that may be selected in each area designated under (a) of this section except that the commissioner may not permit an entry on more than
- (1) 160 acres of land classified for agricultural use; or
 - (2) 40 acres of land not classified for agricultural use.
- (g) The commissioner may limit the number of persons permitted to obtain homestead entries within an area designated under (a) of this section by a lottery of qualified applicants.

AS 38.09.020. Homestead Entry Permits.

- (a) A homestead entry permit entitles an applicant to enter land within an area designated under AS [38.09.010](#) and to survey, occupy, and improve the land in order to qualify for a patent under this chapter.

(b) An applicant for a homestead entry permit shall personally stake the corners and flag the boundaries of the land entered under this chapter and shall personally file with the commissioner a description of the land entered. A homestead entry shall be described by aliquot parts unless otherwise permitted by the commissioner. The commissioner may require the applicant to establish a deposit for the costs of survey before issuing the homestead entry permit.

AS 38.09.030. Qualification for Homestead Entry.

(a) An applicant for a homestead entry permit shall

(1) submit proof acceptable to the commissioner that the applicant is at least 18 years of age and has been a resident of the state for not less than one year immediately before the date of application;

(2) pay a fee of \$5 per acre according to the description provided by the applicant if the entry is on land classified agricultural, or \$10 per acre if the entry is on land not classified agricultural;

(3) agree to comply with the requirements of AS [38.09.050](#) ;

(4) certify that the corners of the land entered have been staked and the boundaries have been flagged;

(5) assume full responsibility for the accuracy of the description of the land filed with the commissioner under AS [38.09.020](#) (b).

(b) Except as provided in (c) of this section, an applicant may not hold more than one homestead entry permit at one time and may not receive a patent to more than one homestead entry in a lifetime.

(c) The homestead entry permit may not be assigned, conveyed, or in any manner transferred except

(1) by testate or intestate succession;

(2) to a spouse during marriage;

(3) by order of a court as part of a divorce settlement;

(4) to either a member of the immediate family or a grantee of the applicant in the case of an extreme emergency or illness which disables the applicant; or

(5) after the approval of the commissioner, by an exchange between parties in the same homestead area.

AS 38.09.040. Revocation of Entry Permits.

(a) A homestead entry permit may be revoked by the commissioner for a substantial breach of the permit conditions or the requirements of this chapter, including

(1) an assignment, conveyance, or transfer of the permit not authorized under AS [38.09.030](#) (c);

(2) failure of the permit holder to submit an aliquot parts description of the homestead entry or, a plat of survey where the commissioner waived the requirement of a rectangular survey grid to the commissioner within five years after the issuance of the permit;

(3) [Repealed, Sec. 38 ch 91 SLA 1997].

(4) failure to brush the boundaries of the land not described by aliquot parts or as a lot of record within 90 days after issuance of the homestead entry permit;

(5) failure to clear and either put into production or prepare for cultivation either 25 percent of the land classified for agricultural use or 50 percent of the cropland soils, whichever is less, within five years after the issuance of the permit.

(b) [Repealed, Sec. 20 ch 75 SLA 1987].

(c) If a homestead entry permit is revoked under (a) of this section, improvements or personal property upon the land shall be managed under AS [38.05.090](#) and the state land remains available for homestead entry under this chapter

AS 38.09.050. Issuance of Patent.

(a) The commissioner shall issue a patent to homestead entry land if the permit holder

(1) resides and lives on the homestead entry land for not less than 25 months within five years after the issuance of the homestead entry permit;

(2) submits an aliquot parts description or completes an approved survey of the land in an area where the commissioner waives the rectangular survey grid within five years after the issuance of the permit;

(3) [Repealed, Sec. 38 ch 91 SLA 1997].

(4) brushes the boundaries of the land not described by aliquot parts or as a lot of record within 90 days after the issuance of the permit;

(5) clears and either puts into production or prepares for cultivation either 25 percent of the land classified for agricultural use or 50 percent of the cropland soils, whichever is less, within five years after issuance of the permit.

(b) Nothing in this chapter prohibits a homestead entry permit holder from residing in a temporary dwelling on the homestead.

(c) The commissioner may reserve or exclude from a patent easements or rights-of-way for roads, trails, trap lines, public access ways, utility corridors, and transportation facilities.

(d) [Repealed, Sec. 38 ch 91 SLA 1997].

(e) [Repealed, Sec. 38 ch 91 SLA 1997].

AS 38.09.060. Marking Boundaries.

If it is impractical to brush the boundaries of a homestead entry, an applicant shall flag the boundaries.

AS 38.09.070. Priority of Applications.

The commissioner shall issue a homestead entry permit to the first applicant for land to comply with AS [38.09.020](#) (b).

AS 38.09.090. Purchase.

(a) If an applicant complies with the requirements of AS [38.09.050](#)(a)(2), (4), and (5) and pays to the commissioner an amount equal to five percent of the fair market value within two years of the issuance of an entry permit, an applicant may purchase the land under AS [38.05.065](#) . The purchase price is the fair market value of the land at the issuance of the entry permit as determined by the commissioner.

(b) An applicant who complies with AS [38.09.050](#) (a) (2), (4), and (5), and who tenders the commissioner an amount equal to five percent of the present fair market value of the land within five years of the issuance of the permit may purchase the land under AS [38.05.065](#) . The purchase price is the fair market value of the land at the time of the purchase.

AS 38.09.100. Lessees of Remote Parcels.

(a) A lessee of a remote parcel under former AS [38.05.077](#) may elect to obtain title to the remote parcel under AS [38.09.050](#) . If a lessee of a remote parcel elects to obtain title under AS [38.09.050](#) , July 28, 1983, shall be considered the date of the issuance of the homestead entry permit.

(b) Except as provided in (a) of this section, nothing in this chapter affects the rights and obligations of lessees of remote parcels under former AS [38.05.077](#) .

(c) Notwithstanding the provisions of former AS [38.05.077](#) and 38.05.078, the heirs or devisees of a deceased lessee of a remote parcel may sell their interest in the lease of the remote parcel. The sellers shall notify the commissioner of the sale.

AS 38.09.105. Removal of Conditions On Remote Parcel and Homestead Entry Land.

(a) The commissioner may not include the conditions of former AS 38.05.078(d) in a remote parcel purchase contract issued on or after July 1, 1997.

(b) The commissioner shall amend a remote parcel or homestead entry land purchase contract or patent issued before July 1, 1997 to remove the conditions of former AS 38.05.078 (d) or former AS [38.09.050](#) (e) if the holder of the purchase contract or patent

(1) requests the amendment;

(2) pays the reasonable administrative costs of the amendment as determined by the commissioner; and

(3) pays the difference, as established by the commissioner, between the land's fair market value before the amendment and the estimated fair market value after the amendment.

AS 38.09.900. Definitions.

In this chapter

(1) "brush" means to clear a swath along the boundary lines of a homestead entry so that the boundary lines may be identified from the ground;

(2) "commissioner" means the commissioner of natural resources;

(3) [Repealed, Sec. 38 ch 91 SLA 1997].

(4) [Repealed, Sec. 38 ch 91 SLA 1997].

(5) "resident" means an individual who has resided in the state for one year, is a U.S. citizen and does not claim residence in another state, and shows by all attending circumstances an intent to make this state the individual's permanent residence.

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