KODIAK ISLAND, ALASKA

COMPREHENSIVE DEVELOPMENT PLAN

KODIAK ISLAND BOROUGH

OCTOBER 1984

NORGAARD
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KARLUK
COMPREHENSIVE DEVELOPMENT PLAN
Community of Karluk
Kodiak Island Borough, Alaska

October, 1984

Prepared by:
NORGAARD CONSULTANTS

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SETTING

SETTING

History

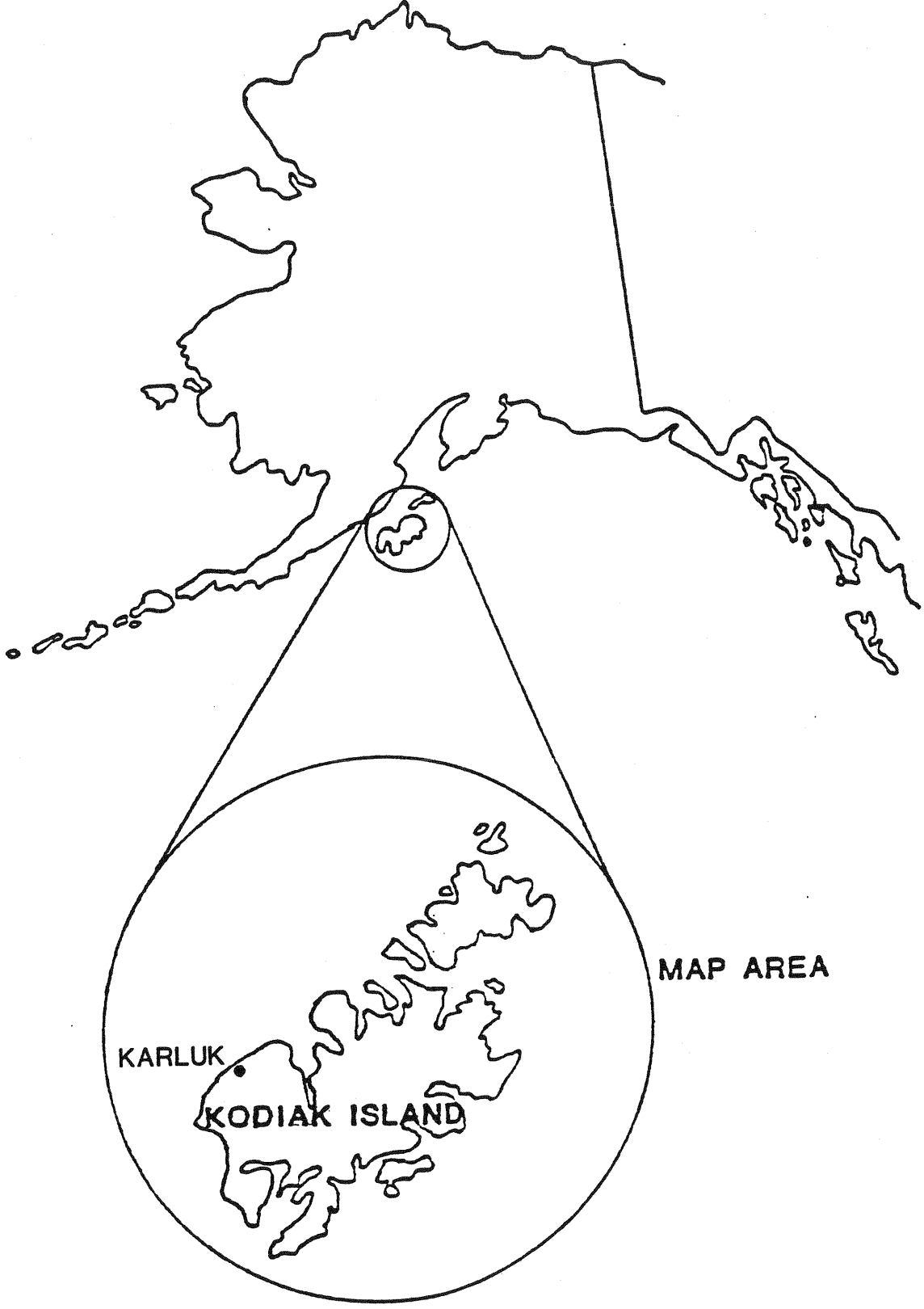
Due to its abundant subsistence potential, the mouth of the Karluk River was populated, at least seasonally, for centuries prior to Russian occupation of Kodiak Island in the late 18th Century. A trading post was established at Karluk in 1786 by Russian hunters and the following century witnessed the construction of tanneries, salteries and canneries in the area. Soon after Russian occupation the large salmon runs in the Karluk River were famous worldwide soon. At the beginning of the 19th Century, Karluk was considered to have the largest salmon cannery and the Karluk River the largest salmon run in the world.

The predominence of fish processing continued throughout the 1800's and into the 20th Century. A post office was established in 1892. Alaska Packer's Association constructed processing and canning facilities in the early 1900's. Overfishing of the river and its salmon stocks resulted in the collapse of the salmon fishing industry during the 1930's. While salmon fishing remains the sole economic industry within the community, shore-side processing does not exist.

Until 1979, Karluk consisted of two settlement sites, one on either side of the Karluk River in the area of the Karluk Lagoon. The two sites were connected by both a footbridge and spit. Old Karluk lay on the northeast side of the lagoon and Karluk on the southwest.

During an exceptionally severe winter storm on January 7-8, 1978, 100 mph northeasterly winds caused a breaching of the spit. Personal property was destroyed and foot access between

the two sites was lost. Karluk residents relocated the village to a site on the south side of the lagoon, approximately 3/4 mile upstream. This site, New Karluk, is the current home for most village residents.



LOCATION MAP
FIGURE 1

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Local Government and Native Corporations

Karluk Tribal Council

Karluk is an unincorporated community. Local government for the native population is vested in the tribal council which, with an adopted constitution and bylaws, is recognized by the Bureau of Indian Affairs as the official tribal governing body of the village. The council is made up of seven members who are elected at large by the local native population for two-year terms, with elections held every other year.

The tribal council is eligible to administer a range of federal programs, including tribal operations, health care, social services, and other programs. Most of these programs are delivered through close coordination and cooperation with the Kodiak Area Native Association.

Karluk is a recipient of revenue-sharing funds from both the state and federal programs.

Kodiak Island Borough

The Kodiak Island Borough, a second class borough, is governed by an elected assembly of seven members and a mayor. Borough powers include the levying of taxes, planning, platting and zoning, education, and park and recreation programming. These powers are executed on a borough-wide basis for cities and unincorporated communities such as Karluk. The Borough employs a borough manager who is responsible for the administration of the borough government, including the supervision of staff.

Planning, platting and zoning for the village of Karluk are administered by the Kodiak Island Borough through the Borough Planning Department.

Karluk Native Corporation

As the local native corporation formed pursuant to the Alaska Native Claims Settlement Act of 1971, the Karluk Native

Corporation selected and received interim conveyance of 83,787 acres which represents more than 90% of the 92,160 acres to which it is entitled.

On December 6, 1980, Karluk Native Corporation merged with Koniag, Inc., the regional native corporation. As a result of this action, the merged corporation owns both the surface and subsurface rights to all land holdings.

Koniag Regional Corporation

Koniag, Inc. is a regional native corporation formed pursuant to the Alaska Native Claims Settlement Act of 1971 and is a private, for-profit corporation. Current assets include most of the property surrounding the village as well as major holdings throughout the Kodiak Island Borough.

SECTION II

PHYSICAL ENVIRONMENT

PHYSICAL ENVIRONMENT

Topography

The village of Karluk is located in the area of Karluk Lagoon at the mouth of the Karluk River. The Karluk River, the largest on Kodiak Island, empties into a tidal lagoon which is separated from the waters of Shelikof Straits by a gravel spit. This spit has changed in configuration across the years, most recently as a result of the January 1978 storm which forced the relocation of the village.

The area is grassy and virtually treeless. Patches of brush occur in the more sheltered areas.

The beaches are primarily sand and gravel. Coastal bluffs rise behind the shoreline of the lagoon. The banks of these bluffs have side slopes of approximately one vertical to one horizontal and rise to elevations of up to 70 feet (Tetra Tech., 1982). The seacoast is extremely rugged with vertical cliffs descending as much as 500 feet to the beach. Surrounding hills rise to elevations of up to 1500 feet.

KARLUK, ALASKA

Comprehensive Plan

Figure 2

TOPOGRAPHIC MAP

Legend

CI 50'

0 600 1200

Scale in feet

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Climate

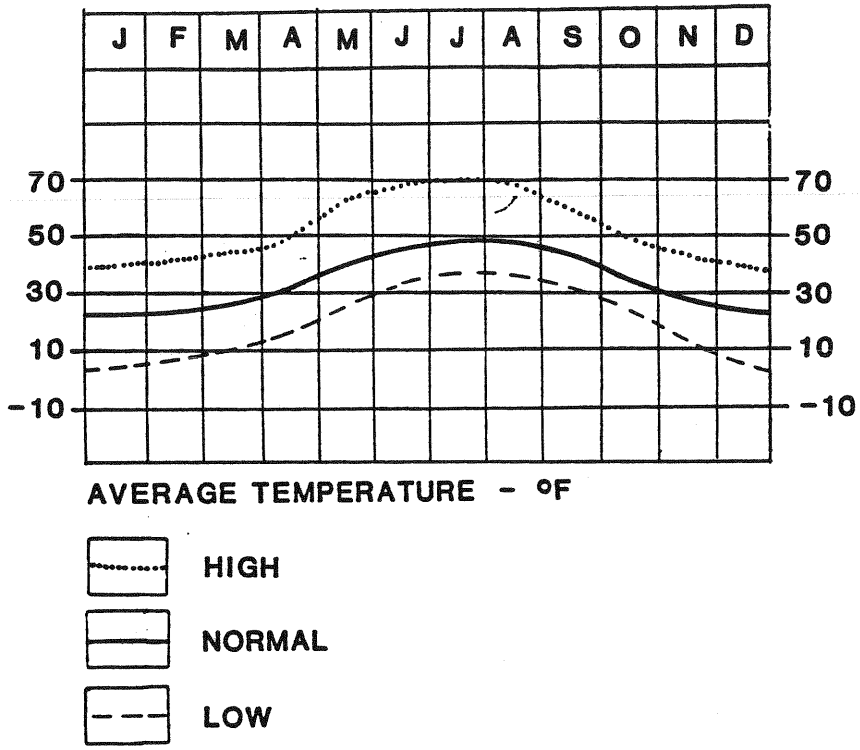
Karluk's climate, as for all of Kodiak Island, is maritime in nature. Precipitation is moderate to heavy and the skies are frequently cloudy. Fog is also frequent, especially during the summer months. Temperatures are cool but temperature variations are not great, resulting in cool summers but relatively warm winters with little freezing weather.

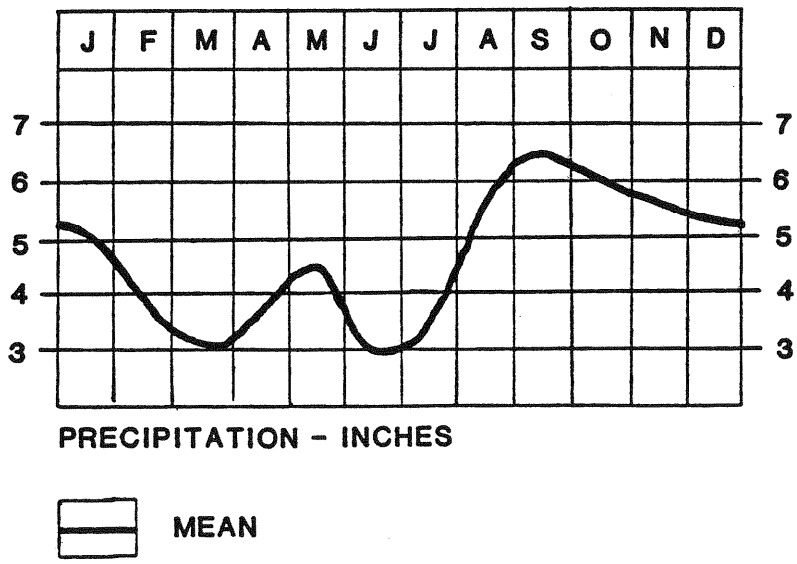
Temperatures at Karluk range from 31 degrees to 54 degrees Fahrenheit and annual precipitation ranges from 40 to 80 inches with variations in terrain and exposure determining local variations. These precipitation figures include a mean annual snowfall of 20 to 70 inches (Tetra Tech., 1982).

Fog is reported heaviest during the summer months of June thru September and occurs at least 10% of the time.

Storms can occur at any time during the year but are most severe during the winter months of December thru February. These storms are the result of systems that originate in the Gulf of Alaska and in the north Pacific Ocean. These storms often produce winds in excess of 50 knots and frequently remain stationary. The combined effect is heavy, destructive wave action along the coast of Kodiak Island. These were the conditions which resulted in the damaging January 1978 storm which resulted in the relocation of the village site.

TEMPERATURE AND PRECIPITATION





CLIMATIC DATA

FIGURE 3

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Geology

The geology of the Kodiak Islands dates from marine sedimentation and volcanic activity during the Creteceous and Jurrasic periods of the late Mesozoic Era. Extensive uplifting combined with extended periods of glaciation carved the narrow, steep valleys and straits typical of the Island.

Soils throughout the island are typically relatively shallow. Surface deposits are found in valley bottoms and along the coastal plains. As a result of these shallow soil deposits, the coastline is characterized by coarse gravel beaches which front sea cliffs and bluffs. Karluk Spit is made of coarse gravel which indicates severe wave action with a minimal supply of local sand (Tetra Tech., 1982).

The new townsite is located in an area which abuts the steeply rising slopes of the lagoon banks. Soils are silty-loam interstratified with layers of sand and gravel. The soils are usually well-drained (Tetra Tech., 1982).

Fish and Wildlife

Fish and wildlife abound in the vicinity of Karluk, with species and numbers typical of the Kodiak Islands. The use of this abundant resource falls into three major classifications: commercial, subsistence and recreational or sport.

Commercial

Commercial activities are confined to the harvesting of salmon which utilize the waters of the Shelikof Straits and the Karluk River. While shoreside processing is no longer active

in Karluk, local residents fish the fall silvers heavily from small power boats and skiffs. The fish are sold and delivered to nearby floating processors.

Subsistence

Subsistence harvesting in the Karluk area utilizes most available fish and wildlife species. These resources include shellfish, finfish, waterfowl, small and big game, and marine mammals.

Subsistence activities occur over a relatively wide area around Karluk. General activities take place between Cape Ugat north of Uyak Bay, Uyak Bay and Bumble Bay. Important subsistence areas, both in the immediate village vicinity and in those areas farther from the settlements, are provided below with the major species harvested (Kodiak Island Borough, 1983).

Karluk River and Lagoon: salmon, trout, char
Gurney Bay-Cape Uyak: crab
Sturgeon Head: seal
Rocky Point: seal
Halibut Bay: waterfowl
North of Red Lake: reindeer
Middle Cape-Bumble Bay: seal
Uyak-Spiridon-Zachar Bays: duck, seal, deer

Most residents rely heavily on subsistence hunting and fishing too supplement their daily foodstuffs. Measured on the basis of a cash economy, 52% of the local population were considered to be low income in 1979 (Dowl, 1981).

Recreation/Sport

Karluk River and Lagoon attract many visitors for fishing, hunting and floating activities and opportunities. At the present time, most of these recreation/sport transients pass through the community in pursuit of their particular activity with very little benefit going to the Village of Karluk.

Local residents are concerned that the increased recreational use of the river and lagoon will result in greater pressures on the fish stocks. This may result in a reduced allocation to commercial harvest for the protection of the recreational harvest (Kodiak Island Borough, 1983).

Vegetation

Kodiak Island hosts a variety of vegetation from the tall stands of Sitka Spruce in the northern islands to the grassy areas of the west. Karluk is located in a transition zone between low and high brush and the moist tundra.

Vegetation is diverse, including such dominant types as scattered patches of willow and alder brush, sedges and dwarf birch. Grasses include fescue and beach rye. Other dominant vegetation includes lichens, cranberry, crowberry, blueberry, fireweed, horsetail, mosses, ferns, and cotton grass (DOWL, 1981).

Currents and Coastal Processes

Tides in the Karluk area are of the semidiurnal, mixed type consisting of two unequal high and low tides each during the twenty-five hour tidal period. While there is no measuring station at Karluk, there are stations at Larsen Bay and at Uyak Anchorage. Measurements for the stations are 13.7 ft. and 13.8 ft., respectively, for mean higher high water (MHHW) and 0.0 for each at mean lower low water (MLLW). Extreme low water measurements of -4.5 ft. and -4.0 ft., respectively, have been recorded. Karluk Lagoon would experience a tidal range smaller than these measurements due to hydraulic resistence of the inlet (Tetra Tech., 1982).

Tidal currents of up to 4 knots have been measured within Karluk Lagoon while 1 knot estimates have been given for common tidal currents along the outer shores along Shelikof Straits. Southwest currents predominate (Tetra Tech., 1982).

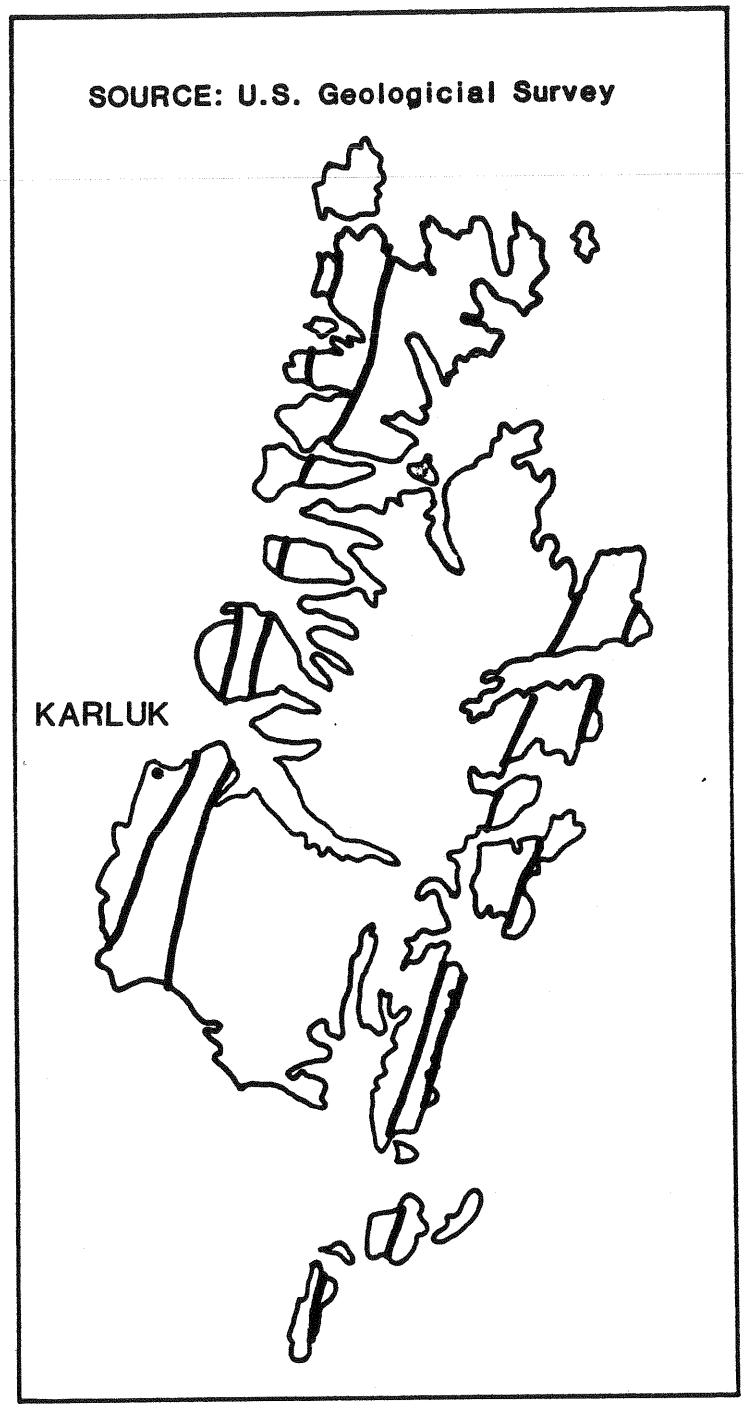
Wave heights within Karluk Lagoon can reach 2.0 to 3.0 ft. under storm conditions. Twenty foot seas have been reported breaking along the spit. These conditions are the result of storms from the northeast (Tetra Tech., 1982). Winds are predominately from the northeast but opposite winds from the southwest, also parallel to the Shelikof Strait, are common.

Hazards

Geologic hazards for the Karluk area are those associated with the regional tectonism of the area. The regional tectonism is capable of producing far-reaching impacts. A regional fault has been identified and mapped 3.5 km southeast of the village. In addition, the location of the village on unconsolidated materials contributes to the likelihood of ground-shaking, subsidence and liquification in the event of an earthquake.

Secondary volcanic phenomena are a potential risk for the village. Volcanism in the active ranges to the north and west can produce great amounts of gas and ash that can blanket wide areas, as experienced across the Kodiak Islands during the Mt. Katmai eruption of 1912. Acid rain also is a common threat as volcanic gases are mixed with precipitation and fall over wide areas.

Riverine flooding of the new townsite is considered remote due to the high banks of the lagoon, the modifying effects of the lagoon and the 9,500-acre lake on the river. Small streams, in the vicinity of the new townsite, should not pose flooding problems, although occasional overtopping may inundate any facility located near them.



MAJOR FAULT LINES

FIGURE 4

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Oceanic hazards are those associated with high waves and erosion action, especially affecting unprotected sedimentary shorelines. These are examined in greater detail for Karluk in the following section of this document.

Erosion

As a result of the breach of Karluk Spit during the January 1978 storm, an increase in the recession rate of shoreline of Karluk Lagoon has been observed by local residents. In 1982, the problem was studied by Tetra Tech. under contract with the State of Alaska Department of Transportation/Public Facilities, Division of Design and Construction, and a draft final report was published in September of that year.

The increase in shoreline and bank recession is attributed to the increase in tidal action within Karluk Lagoon as a result of the relocation of the lagoon inlet. Prior to the 1978 breach, the inlet was located approximately 1,200 feet west of Karluk at the extreme southwest end of the spit. The new inlet has shifted eastward and is now located directly north of Karluk towards the middle of the spit. The shift in the location of the inlet has increased the tidal forces within the lagoon and allows wave attack higher up the banks of the lagoon shoreline. This increases the rate of erosion and subsequent recession of the shoreline.

Erosional problems have been identified at each of the settlement sites, "Old" Karluk, Karluk, and the "New" Townsite (see figure 5). In reviewing various alternatives proposed, the study concluded that no one single solution would be adequate as measured by the three basic criteria proposed: effectiveness; economy; and social acceptance.

KARLUK, ALASKA

Comprehensive Plan

Figure 5 PROPOSED PLACEMENT OF EROSION REVETMENTS

Legend

AFTER TETRA TECH 1982

REVETMENT

0 600 1200

Scale in feet

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San Francisco/Copenhagen

The proposed solution consisted of a combination of approaches, depending upon the site. These were the relocation or replacement of two private residences at Karluk, the construction of a riprap or gabion revetment at Old Karluk, and the placement of a sacrificial gravel berm along the bank of the New Townsite.

When reviewed, the Kodiak Island Borough as well as Kodiak Area Native Association, comments were supportive with the exception of the proposed relocation of the two private homes at the Karluk site. Instead, the construction of a revetment to protect the shoreline was proposed. This alternative was supported for two reasons. First, relocation of the homes was considered incongruent with any "social acceptance" criteria used within the study. Second, although some right-of-way issues are under dispute, there exists a road between the two houses in question and the shoreline that provides general access to the beach and water. Although more expensive, the revetment construction at this site also would protect the access road as well as the two homes.

Total project costs for the erosion program as outlined within the study, in 1982 dollars, is $465,700 or $600,000 depending whether or not the revetment construction is utilized instead of home replacement at the Karluk site.

SECTION III

CULTURAL ENVIRONMENT

CULTURAL ENVIRONMENT

Land Use

The community of Karluk encompasses three separate sites on the Karluk Lagoon at the mouth of the Karluk River. Historically, the community was split across two sites, one on either side of the spit at the entrance to the lagoon. "Old" Karluk lay on the northern side with Karluk on the southern side. "New" Karluk now serves as the residential focus of the community with all but three or four families living here.

"Old" Karluk remains the site of the lodge which is a privately owned venture serving sport hunting and fishing enthusiasts. The lodge serves a select clientele and operates only on a reservation basis. In addition to the lodge, the "Old" Karluk site contains two to three other maintained buildings. The old BIA School building, also owned by the lodge proprietors, provides additional lodging services.

Karluk, on the southern side of the lagoon opening into the Shelikof Straits, remains the site of two community residents. In addition, this site contains the Russian Church building and cemetery. The remains of the shoreside processing facilities occupy this site. The airstrip with its maintenance building is nestled just east of the abandoned village. The bulk fuel tank has recently been located adjacent to the airstrip property to the west.

Except for those noted previously, all Karluk residents reside within the boundaries of the new community site, herein referred to as "New" Karluk.

The three village sites contain no federal townsite. Most of the land holdings are those of Koniag, Inc., resulting from its merger with the local corporation.

KARLUK, ALASKA

Comprehensive Plan

Figure 6
GENERALIZED
LAND OWNERSHIP

Legend

- FEDERAL
- STATE
- NATIVE CORPORATION
- VILLAGE
- BOROUGH
- PRIVATE

0 600 1200
Scale in feet

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KARLUK, ALASKA

Comprehensive Plan

Figure 7
EXISTING LAND
USE MAP

Legend

- PUBLIC
- RESIDENTIAL
- WATERSHED
- COMMERCIAL

BALANCE OF LAND=CONSERVATION

0 600 1200
Scale in feet

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Anchorage/Juneau
San Francisco/Copenhagen

Other private holdings are owned by Del Monte Corp. and its holding company. These lands were those associated with earlier fish processing holdings and currently lie under water for the most part. Those that remain unsubmerged are the cause for current dispute revolving around beach access at the Karluk site.

Other significant tracts include those held by governmental bodies for the airstrip and the school, by Alaska Department of Transportation and Public Facilities and the Kodiak Island Borough, respectively.

Of the twenty-three platted residential tracts within the "New" Karluk townsite, two remain empty and one is occupied by the community building.

Of the larger tracts sited along the lagoon shore, one is dedicated to the sewerage drain field. Another is the location for two trailers used for teacher housing. The third is reserved for commercial activity and is the current site for the Alascom satellite receiving dish and station.

The sanitary landfill site lies just east of the "New" Karluk site.

A road connects the "New" Karluk site with the airstrip. This road continues across disputed lands to the beach and the Karluk site on the southern side of the lagoon mouth.

Community Facilities

Except for the bulk fuel tank and the airstrip, all community facilities are located within the "New" Karluk townsite. These two exceptions lie adjacent to the Karluk site on the southern side of the lagoon mouth.

The Karluk Community Building occupies one lot in the northern quarter of the village. It

serves as the location for community meetings as well as social events (from dinners and similar functions to bingo).

In addition, the Community Building serves as the location for a preschool program operated by KANA. The U.S. Post Office is located within this building.

The local health clinic is also situated within the walls of the Community Building. It consists of examination facilities as well as space for office functions and a waiting room. It is equipped with the basic supplies and equipment necessary to serve its function within the community as a basic primary health care provider.

The new school facility is located on the southern edge of the village site on Kodiak Island Borough property. The facility provides educational and related programs for grades Kindergarten through 10th. The community's children travel to Kodiak for their 11th and 12th grade education and are so served through the cottage program. The building is the standard facility which has been placed throughout the borough and is equipped with classrooms, kitchen, multipurpose room, industrial arts shop, science center, conference room, offices, restrooms and showers.

The Karluk Lodge is located at the "Old" Karluk site and is privately owned and operated. The lodge provides bed and board accommodations to select visitors, served on a reservation basis only.

The cemetery is located adjacent to the Russian Orthodox Church at the abandoned Karluk site on the southern side of the lagoon mouth.

The sanitary landfill site is located approximately one-eighth mile east of the "New" Karluk village site. Access is difficult at times and the road needs to be upgraded to allow year-round access.

KARLUK, ALASKA

Comprehensive Plan

Figure 8
COMMUNITY FACILITY MAP

Legend

1. AIRSTRIP
2. RUSSIAN ORTHODOX CHURCH
3. ABANDONED PROCESSING BLDGS
4. CEMETERY
5. STATE GARAGE
6. LODGE
7. BULK FUEL TANK
8. SCHOOL
9. WATER TANK
10. WATER TREATMENT BLDG
11. VILLAGE SHOP
12. SATELLITE RECEIVING DISH/SHE
13. COMMUNITY BLDG
    POST OFFICE/CLINIC
14. WATER INFILTRATION GALLERY
15. TEACHER HOUSING
16. SANITARY LANDFILL

0 600 1200
Scale in feet

Prepared by:
Norgaard Consultants
Anchorage/Juneau
San Francisco/Copenhagen

Transportation

Transportation to and from Karluk is available by air and water only.

Water transportation allows for the delivery of bulk fuel requirements for the community. Otherwise, water transportation is limited to fishing vessels which may be in the area or are operated by local individuals.

Bulk fuel is delivered to the bulk holding tank and then to users within the "New" Karluk village site by means of a fuel truck.

There are no docking or mooring facilities at any of the Karluk village sites. Any freight delivered must be lightered to the beach and then hauled to its destination.

Air transportation is aided by a 2,400 ft. gravel airstrip constructed in 1981. SEAIR provides limited scheduled service from Kodiak. In addition, charter service is available from the island's charter air carriers.

Within the community, the "New" Karluk village site is connected by an Alaska DOT/PF maintained road to the airstrip. The road continues to the beach at the abandoned Karluk site but is unmaintained beyond the airstrip.

The "New" Karluk village is dissected by a good street grid system with most resulting "blocks" only two lots deep. A boardwalk provides additional foot access within the community.

Utilities

The Karluk water system was constructed by the Public Health Service (PHS) in 1979 and connects all houses and buildings within the "New" Karluk village site. The water is collected above the village site to the south and stored in a 35,000 gal. tank. The water is also treated with chlorine and flouride. The pump house is located between the school site and the residences near the center of the community.

Sewer lines were constructed at the same time by PHS and similarly connect all of the village structures. The waste system is connected to a septic-drainfield located in the northwestern corner of the newly platted village along the lagoon shore.

The sewer system is capable of expansion but the water system is considered close to maximum use levels. Additional water sources would have to be identified and water collection and storage systems constructed to allow any significant new construction within the village.

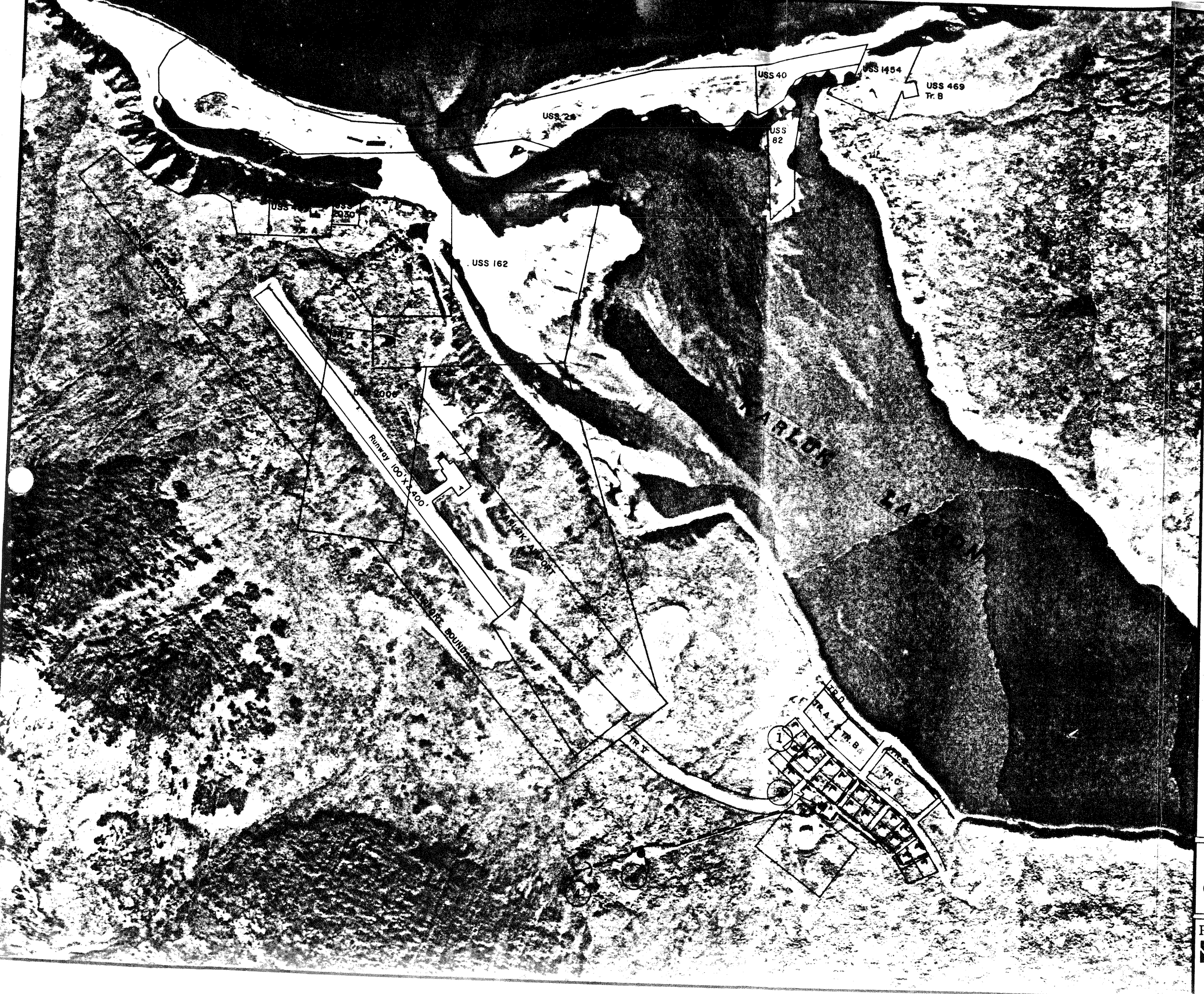
The village residents currently rely on individual generators for private electrical generation. The school provides for electrical needs by means of its own generator.

Funds were allocated by the 1984 Alaska Legislature for the construction of a central village generation plant. Actual funding levels, however, will not allow for the full realization of the project as originally designed or intended. A tie to the school's waste heat recovery system will not be possible. As a result, school facility hook-up is not expected during the first year of operation. Potential users, outside the village proper, will not be hooked up to the new system. At the heart of the new system are two 55kW generators previously donated by the Kodiak Island Borough. The plant will be

KARLUK, ALASKA

Comprehensive Plan

Figure 9
WATER SYSTEM



Legend

1. WATER LINE
2. WATER TREATMENT BLDG
3. 50,000 GAL. STORAGE TANK
4. DEVELOPED AQUIFER INFILTRATION GALLERY

0 600 1200
Scale in feet

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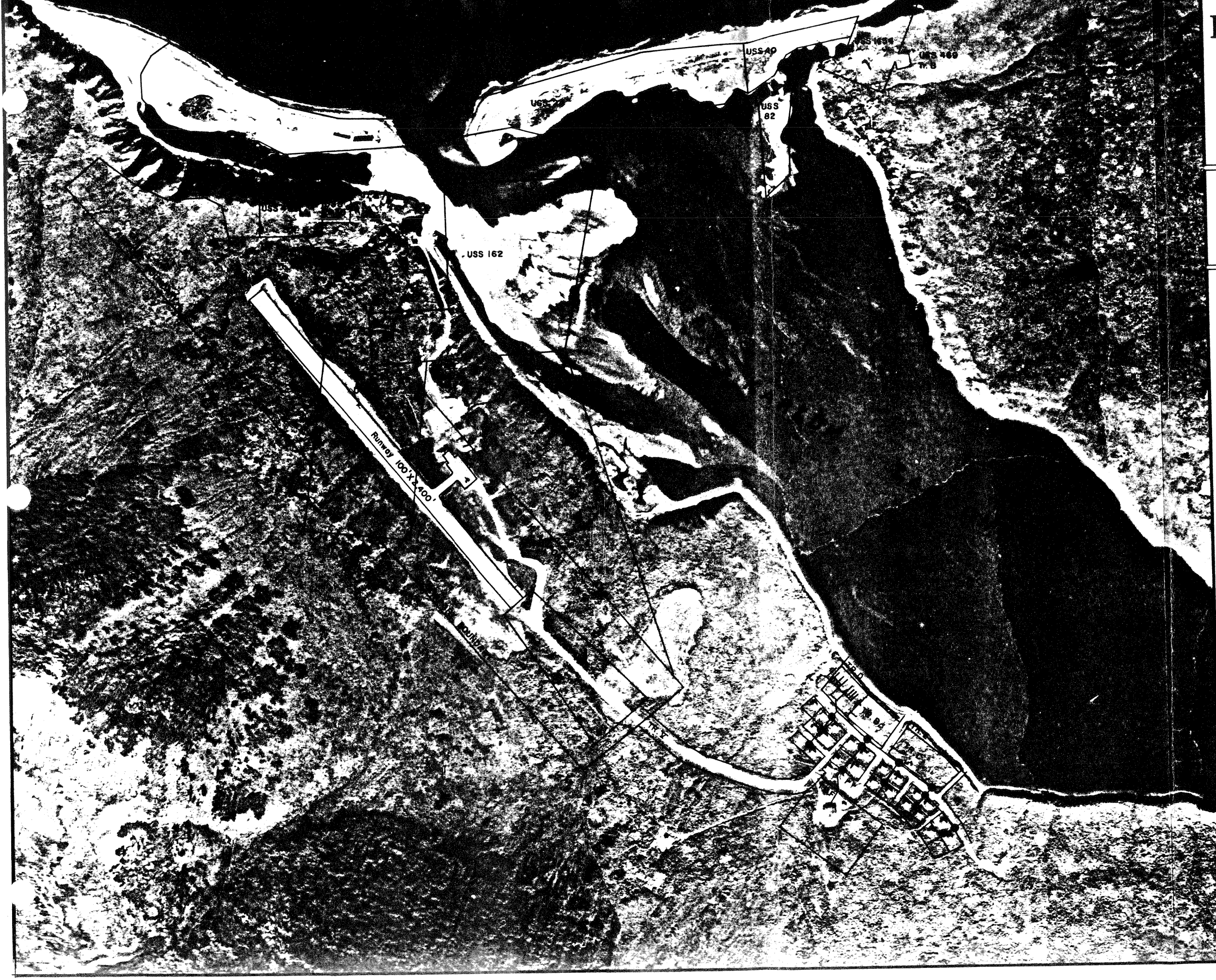
KARLUK, ALASKA

Comprehensive Plan

Figure 10
SEWER SYSTEM
AFTER PHS 1979



Legend

- SEWER LINE
- MAN HOLE
- SUBSURFACE WASTE DISPOSAL SEPTIC TANK/DRAINFIELD

0 600 1200
Scale in feet

Prepared by:
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Anchorage/Juneau
San Francisco/Copenhagen

situated east of and immediately adjacent to the water system pump house and treatment plant. Construction is expected to be completed within the current 1985 fiscal year.

Population

The current population for the community of Karluk is 103 persons. This compares to 98 persons in 1970 and 94 in 1980.

This is a dramatic decline from levels of nearly twice that during the 1930's just before the decline of the salmon production.

Demographic work by KANA in 1981 indicated that the average household size was 4.4 persons with a median age of 21 years.

The KANA figures also indicated that Karluk had the largest economically disadvantaged population on Kodiak Island, measured at 52% of the population in 1980.

SECTION IV

GOALS AND OBJECTIVES

GOALS AND OBJECTIVES

Introduction

The following goals and objectives represent the general desires of the local residents of Karluk for their community in the areas of:

- -transportation
- -housing
- -land use
- -economy
- -recreation
- -environment

These goals and their associated objectives provide the framework for community decisions on matters that affect the village, its infrastructure and its future.

All the goals and objectives presented here subordinate themselves to the following primary community goal:

Primary Goal

To upgrade the living environment in the village to allow for the provision of a higher level of basic community services and infrastructure such as housing, community facilities and a strong economic base, without sacrificing the traditional character and lifestyle of the community.

Transportation Goal

To improve the transportation system, both within the village and to other parts of the Kodiak Island Borough, to facilitate a freer flow of goods and people to, from and within the community.

Objective 1: Maintain the boardwalk system within the village.

Objective 2: Construct a facility within the lagoon to serve as a mooring facility for both small local skiffs and larger fishing boats owned by local fishermen and by transient fishing fleets. A mooring facility with protection for small local vessels is the minimum facility needed.

Objective 3: Continue to upgrade and maintain existing local service roads to allow year-round use.

Objective 4: Actively solicit and encourage the development of a mini-freight ferry service to/from Kodiak for both freight and passenger service.

Objective 5: Secure the dedication of the beach access road which runs from the airstrip to the beach site at the mouth of the lagoon and upgrade its condition so as to allow for year-round use.

Housing Goal

To expand and upgrade the existing stock to provide adequate housing for existing families as well as for maturing adults who wish to remain within the village.

Objective 1: Establish a house-maintenance program in cooperation with the Kodiak Island Borough, KANA, Kodiak Island Borough Housing Authority, and state and federal programs for local homeowners.

Objective 2: Encourage the construction of new quality houses.

Objective 3: Maintain and expand the village utility system as necessary to provide adequate services to existing and new housing stock.

Objective 4: Identify and develop an additional water supply prior to the construction of any new homes on lots not already platted within the village.

Objective 5: Allow for the construction of only single-family houses within the village.

Land Use Goal

To maintain the compatibility of existing land uses within the village while providing for adequate areas for onshore expansion of both fish processing and sport fishing industries.

Objective 1: Identify industrial use area(s) for the purpose of reestablishing fish processing within the community.

Objective 2: Encourage and solicit the development of secondary processing facilities for the production and marketing of smoked, salted and dried fish.

Objective 3: Restrict commercial development to existing commercial use designated areas within the "New" Karluk village site.

Objective 4: Identify land areas for future residential expansion, preferrably contiguous with existing residential development, to be developed only after additional water supply has been provided.

Objective 4: Provide for the preservation of adequate open space and adequate access to and along the shoreline for public as well as commercial uses.

Objective 5: Provide adequate land area for the development and construction of a small boat harbor facility for local vessels.

Economic Development Goal

To establish a broader economic base for the community, focused on expanded participation in the commercial and sport fishing industries, which will provide sufficient local employment to insure the economic stability of the village.

Objective 1: Set aside and maintain areas in Karluk for the construction and operation of shoreside processing facilities.

Objective 2: Actively solicit processing oriented, shore-based industries' investment within the community.

Objective 3: Actively solicit local interest of and investment in the providing of professional guide and charter services within the village for the support of the sport fishing industry.

Objective 4: Encourage the development of local commercial services by local residents to support sport fishing and tourism, such as a food and supply store.

Objective 5: Develop and maintain an adequate infrastructure for local business and industry.

Objective 6: Encourage the provision of on-site vocational training within the village so that local residents may develop those employment skills to allow them to be competitive for any expanded local employment.

Recreation Goal

To provide a wide range of recreational opportunities for all members of the community.

Objective 1: Establish a parks and recreation program for the village in cooperation with the Kodiak Island Borough.

Objective 2: Develop and maintain both indoor and a central outdoor recreation area for use by all ages and by the entire community.

Objective 3: Maintain community access to and use of school facilities for recreational purposes, including the securement of insurance as necessary.

Objective 4: Maintain a broad area around the village for subsistence and recreation uses as is currently being utilized by residents.

Environmental Protection and Enhancement Goal

To ensure that the natural environment is protected and enhanced by eliminating existing sources of environmental degradation and by prohibiting future actions by private and public entities that might adversely affect the environmental quality of Karluk and the surrounding area.

Objective 1: Implement local erosion control measures to ensure the continued stability of the shoreline, beaches and bluffs.

Objective 2: Upgrade and maintain an adequate community landfill site, including proper year-round access.

Objective 3: Prohibit any development that does not preserve the natural land forms, subsistence resource habitats, existing vegetation, and other existing environmental features of the Karluk area to the maximum extent possible.

Objective 4: Except for activities that are water dependent, restrict all beaches and shoreline from permanent development.

Objective 5: Maintain a protected watershed for community water resources, including nondevelopment of any land area within five feet of the top of the banks of streams which flow adjacent to the village sites.

SECTION V

FUTURE CONDITIONS

FUTURE CONDITIONS

Commercial and Industrial

Existing commercial and industrial property is located in each of the three village sites. "Old" Karluk contains the Karluk Lodge complex which includes the lodge building as well as the old BIA School building, which has been converted to dormitory use for lodge guests. "New" Karluk has designated a tract of land within its community core and adjacent to the lagoon beach for commercial activity. The old processing co-op site remains within the abandoned village site referred to as Karluk on the southern side of the lagoon's mouth.

Future enterprises desired by the community and reflected within the goals and objectives section just presented focus on fish processing. Current economic activity centers around the catching and selling of salmon to floating processors. It is the community's desire to bring processing back onshore and particularly to develop secondary processing production for speciality products, including smoked, salted and dried salmon.

Land acreage for such onshore development needs to be dedicated so as to provide for a centralized industrial area. Such centralization allows for maximum utilization and benefits of utilities, infrastructure and energy production.

In addition to water-related commercial ventures, the community will support a locally-based and locally-provided sport hunting and fishing industry. Such commercial activities are currently in place and providing significant traffic into the Karluk area. However, the services are not based in Karluk and no revenues are realized by local residents.

In addition to infusing more outside dollars into the local economy, locally-owned and operated sport hunting and fishing services

would provide local residents with a means of exerting more control over the subsistence and recreation use of the surrounding countryside. This high level maintenance of a subsistence habitat is as important as any specific cash economy locally.

Specific commercial ventures which will need dedicated land for development include home-based guide services as well as store and shop-based food and supply services. Lodging facilities are needed to serve a clientele on a less select and nonreserved basis as enjoyed by the Karluk Lodge. Souvenir, trade and eating shops would be developed, naturally following the establishment of lodging and guide services, and would probably be home-based, at least initially.

Industrial development would most naturally be developed in the area previously utilized as an onshore processing base and located within the abandoned village site on the south side of the lagoon mouth and west of the current "New" Karluk townsite.

Commercial activity on a nonprocessing nature could be located within the new townsite along the water's edge. Existing commercial activity by the Karluk Lodge will continue to occupy and dominate the use of the "Old" Karluk village site on the north side of the lagoon mouth.

Residential

Residential development across the next fifteen years will be a result of pressures from two sources. First, any development of the local economic base, whether through secondary fish processing and/or through sport hunting and fishing services, will provide a base for supporting an expanded residential population. As demonstrated historically, the Karluk area is easily able to provide a land base for a local population far in excess of any projections for the next one to two decades.

Second, with an expanded economic base, more maturing young adults will be encouraged to stay within the community or to return to it for employment and its complementary subsistence lifestyle.

Both pressures for residential development will be dependent upon the successful establishment of a shore-based economy.

Any additional housing must be developed as an expansion of the existing new village site. With only two lots remaining empty within the existing townsite plat, expansion is mandatory. Such residential expansion lands are available immediately to the east of the existing townsite.

It is impossible to project specific housing demands without a clearly defined locally-based shoreside economy in place. The depressed nature of the existing economy suggests that increased commercial and industrial activity will benefit from existing available labor forces and will not attract any significant population influx, except for those previous Karluk residents who are returning.

Any transient-based population influx can be housed within the processing complex development discussed above.

Utilities

Residents of Karluk are presently utilizing individual gasoline-powered generators for electrical generation. However, as a result of an appropriation from the 1984 Alaska State Legislature, the village received funds for the construction of a central generation system and distribution line. The project will utilize generators donated earlier by the Kodiak Island Borough. When complete, the project will provide electricity to the 19 houses and the community building/clinic within the "New" Karluk village site. The borough-operated public school building will

continue to generate its own electricity as it is also designed to take advantage of their generator's waste heat. Current village plans call for securing additional funds to supplement the existing power generation budget which would allow the village system to tap the waste heat system of the school so that the school can be brought on board as a major industrial user. Until that time, the village will be reaching the maximum end of its operational costs.

The generation project is expected to take approximately 90-120 days to complete. The project should be on-line by the spring of 1985.

This generation project, with two 55kW generators, will provide sufficient electrical power for the new village site into the foreseeable future. Any development within the older village sites, however, will necessitate separate generation development or the tie-in to this power plant. The specific nature of that development will dictate the most cost-effective approach.

Within the new village, the commercial tracts will be stubbed for power to accommodate whatever specific development occurs.

School

The recent completion of the school facility within the new village site provides sufficient space and facilities for the education program. Some accommodations may have to be made should the school program expand into a full high school curriculum. However, the building and site should easily accommodate whatever modifications are necessary.

Streets

Street construction across the next fifteen years should be at a minimum. The access to the existing landfill needs capital improvement to allow for year-round access.

In addition, the beach access from the airport tract to the lagoon mouth in the vicinity of the abandoned village site down river also needs to be developed for year-round access. Prior to development, the right-of-way needs to be dedicated and ownership issues resolved.

Within the new village site, road maintenance needs to be continued as does maintenance of the newly rebuilt boardwalk system.

Any new residential development will need the necessary street development and access. This development, however, is not expected within the near future.

SECTION VI

LAND USE AND DEVELOPMENT

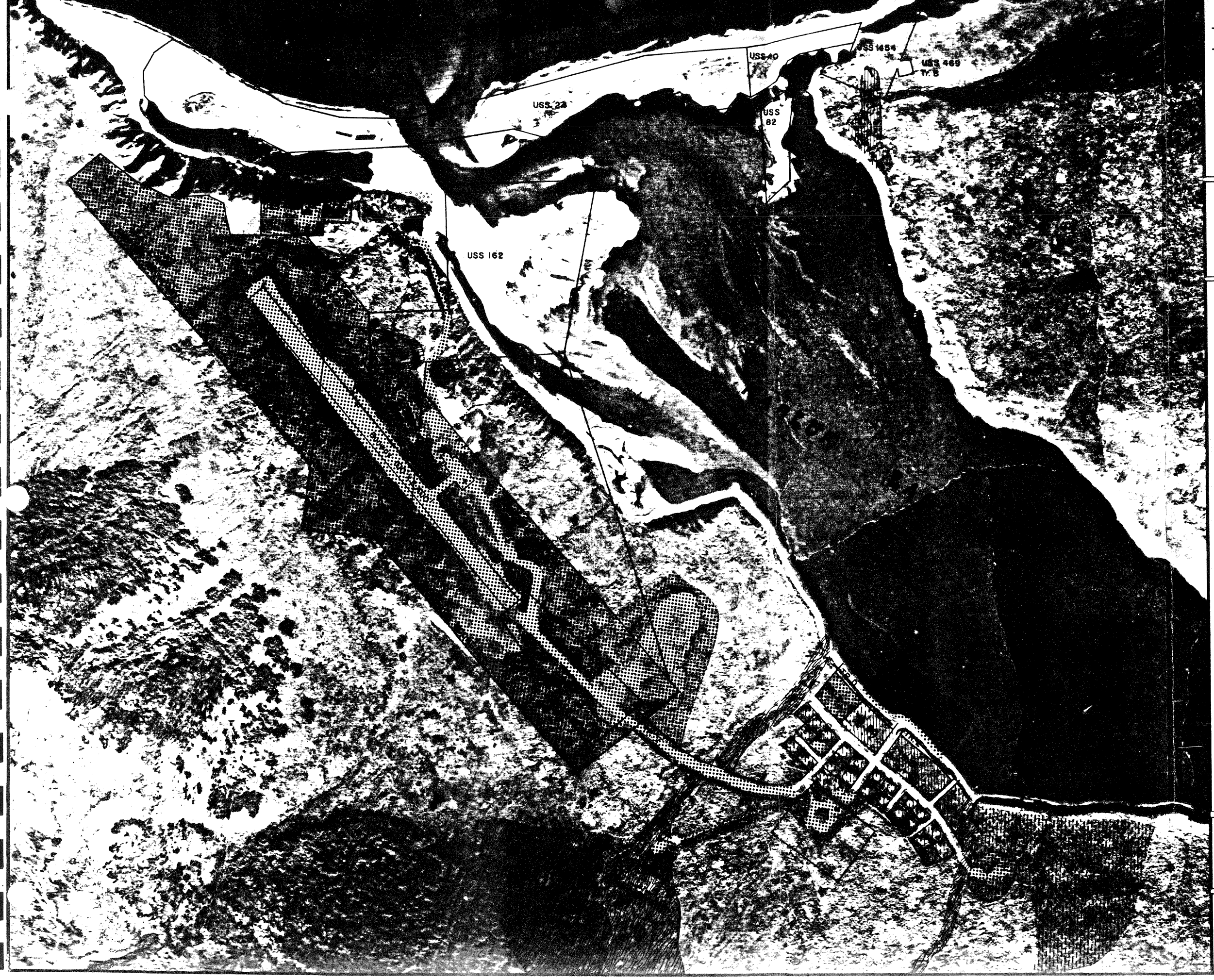
LAND USE AND DEVELOPMENT

Land Use Classifications

The Karluk Comprehensive Plan provides for six basic land use classifications to meet the goals and objectives set out earlier in this report.

1. Public Use
2. Industrial
3. Commercial
4. Residential
5. Watershed
6. Conservation

These classifications are general guides for the future development of the community as well as for maintenance of the basic lifestyle demanded by the residents. Specific zoning ordinances developed by the Kodiak Island Borough in cooperation with Karluk village officials will include the more specific standards for such items as specific use and development standards. (See Fig. 11)



KARLUK, ALASKA

Comprehensive Plan

Figure 11
LAND USE PLAN

Legend

- PUBLIC
- INDUSTREAL
- COMMERCIAL
- RESIDENTIAL
- WATERSHED

BALANCE=CONSERVATION

0 600 1200
Scale in feet

Prepared by:
Norgaard Consultants
Anchorage/Juneau
San Francisco/Copenhagen

Public Use

Acreage set aside for public use, both governmental and religious, is to be held to a minimum and is to be so dedicated for specific public purposes.

Existing public-use areas are concentrated within the new village townsite and are clustered around the school complex. These include the school, the water pump house, the village shop, the soon-to-be-constructed electrical generation plant, and the combined community hall/clinic.

Down river towards the mouth of the lagoon and the abandoned townsite are the airport tract, the bulk fuel tanks, and the Russian Orthodox Church with its adjacent cemetery.

These acreage requirements will remain constant across the next fifteen years. Those elements that will need to expand will be able to so so within their current boundaries. The exceptions are three in number.

First, should the village experience enough growth within the local economy to witness a growth in population which warrants a new housing development, an additional community water source must be identified and brought on line. Whether the existing source can be expanded with increased infiltration and/or storage or a new source must be identified and developed, will have to be decided at that time.

Until such decisions can be made, the village will continue to identify watershed protection areas as well as maintain all otherwise unidentified lands within a conservation status.

Second, the sanitary landfill will have to be relocated prior to the development of additional housing units. The acreage requirement should remain fairly constant.

Relocation will be farther south of its current location and within the same general location to the expanded community as it is to the existing one.

Third, a larger community outdoor recreation field for multiple-use functions should be developed. Current facilities within the new village site only provide playground opportunities for younger children through elementary school ages.

The site identified for the proposed multipurpose field lies between the new village and the airport tract. The area is relatively level, is located contiguous to existing access and remains close to the community while not occupying lands suited for other development purposes.

Waterside development of a small boat harbor or similar mooring facility is needed within the lagoon for the community residents but its best location is undetermined. Due to its proximity to the new village, a site has been identified for future use as commercial. This site is centrally located along the beach. Beach access already exists and basic utilities could be extended with a minimum of difficulty. Site investigations are in order, though, to determine the best site in relationship to protection and water depths.

Industrial

Industrial development within the Karluk area is associated with the reestablishment of shoreside processing, preferrably in the vicinity of previous processing ventures at the mouth of the lagoon.

The community does not envision large scale processing as enjoyed before but, instead, a concentration on secondary processing.

Specialty products with less critical and less expensive freight requirements are seen as the ideal product development for the community. The fish products would involve such processing as smoking, drying and salting.

Locating the industrial lands reserved for such development at the site of previous processing accomplishes two things. First, the community is able to salvage and convert previous structures to operable conditions. Second, the development is sufficiently removed from the new village site so as to minimize the intrusion of industrial traffic and smell.

Commercial

Commercial development is tied to the provision of basic commercial services to local residents. In addition, commercial services are envisioned as the result of the development of locally-provided services to sport hunting and fishing enthusiasts.

Those services which are primarily human in nature, such as guiding, will be operated out of homes. Those involving inventories of any size, such as food and hardware/marine supplies, will require the construction of storefronts. The central beachside tracts within the new village site have been identified as the location for future commercial development.

These tracts are centrally located for village residents as well as ideally situated in relationship to waterside use and development.

The existing tracts should be adequate for any development across the next fifteen years. Should the village need to expand as a result of economic and population growth, additional acreage will need to be identified as a part of that expansion to the east.

Residential

With two lots remaining undeveloped, the community has some limited room for expansion across the short-term. However, additional growth is not expected unless an economic stimulus is developed.

In the event of economic and population growth, the new village site would need to expand to the east along the lagoon's shoreline within the same general elevation limits as currently practiced for reasons of wastewater and potable water gravity flow limitations.

There is sufficient acreage available to the east to satisfy a 100% increase in local population, an event not likely to happen in the foreseeable future.

Watershed

The identification of watershed areas is critical to the Karluk residents as all drinking water is collected at the surface. In addition, no single source within the vicinity of the new village is adequate enough to provide the community's needs beyond current levels. Any significant expansion of residents will involve the identification and development of additional water supplies.

Specific watershed protection has been identified for those drainage areas within the vicinity of current settlement at all three village sites. These have been generalized as the surrounding area has been identified for conservation purposes.

Conservation

The community of Karluk lies within an extremely rich and extremely sensitive habitat resource area. The use and protection of this habitat resource area is of prime concern to local residents.

The habitat resource area is a continuum of both land and water forms with no one vicinity representing the one critical habitat area.

For this reason, the community has identified any area not specifically called out within a different land use classification, as being inclusive within the conservation area. Such conservation allows subsistence use of the resource but does not allow any development.

SECTION VII

CAPITAL IMPROVEMENT PROJECTS

VILLAGE OF KARLUK

CAPITAL IMPROVEMENT PROJECTS

Priority	Project	Est. Cost	Year
1	Public Safety/Equipment Storage Building	$100,000	85/86
2	Complete Electrification	$100,000	85/86
3	Firefighting Equipment	$120,000	85/86
4	Erosion Control	$750,000	86/87
5	Upgrade Sanitary Landfill	$200,000	86/87
6	Small Boat Harbor	$900,000	87/88

CAPITAL IMPROVEMENT PROJECTS NARRATIVE

Priority No. 1: Public Safety/Equipment Storage Building

At the present time there is no protected storage for any municipal equipment. In addition, the village has no protected storage for firefighting equipment or for any of its public safety operations.

The cost estimate for a combined public safety and equipment storage building is $100,000 to provide sufficient square footage for public safety equipment and operations.

Priority No. 2: Completion of Electrification

With the legislative appropriation of $233,000 in 1984, the Village of Karluk has been able to initiate the construction of a central power generation plant and a distribution system throughout the central part of the community.

However, the appropriated funds did not allow the tie-in to the school building's waste heat recovery system connected to the school's separate generating system. As a result, the school system must still operate its own generation system as it cannot afford to give up the savings associated with the heat recovery system.

In addition, the community must duplicate a significant portion of the nonfuel operating costs in maintaining the village system.

The additional investment of $100,000 would allow the tie-in of the school's waste recovery system to the village generation plant. This would make it possible for the

school to become a principle user of the village system, thereby reducing the duplicative operating costs for two generation systems and reducing the overall burden of maintenance costs on the village residents.

Priority No. 3: Firefighting Equipment

The community of Karluk currently has no firefighting equipment or alarm system. The availability of firefighting equipment will create fire protection for local residences as well as structures located outside the relocated village site.

The alarm system will enable rapid response to fire emergencies and thus provide greater protection for the village structures, including the newly constructed school.

Protection currently is virtually nonexistent as the only equipment consists of fire extinguishers. There is no alarm system.

The $120,000 identified would provide for either a traditional large-sized pumper truck with water tank and hoses or smaller track vehicles that would be able to range further within the area and would more likely be able to reach other village sites off of the major road system.

Priority No. 4: Erosion Control

Riprap revetment control of erosion damage was recommended in 1982 within the Tetra Tech. erosion study of Karluk Lagoon. While three general shoreline sites were identified for erosion control measures, the most crucial is in the area of the abandoned village site on the south side of the lagoon at the mouth. Since the 1978 storm, continued erosion has heavily damaged the road access to the beach

from the airstrip and fuel tanks. If this erosion action continues without abatement, access from the beach to the fuel tanks will be almost impossible.

Priority No. 5: Upgrade Sanitary Landfill

The relocated sanitary landfill lies approximately one-eighth mile to the east of the new village site. Inadequate funds prohibited the development of a gradeable road access from the village.

While road improvements have been made, the operation of the site without proper grading, filling and maintenance has left the site in need of major upgrading.

Priority No. 6: Small Boat Harbor

As a long-term development project, the village desires a small boat harbor to serve both village and transient fishing vessels.

The project can be phased with the development of a sectional floating dock facility, similar to those constructed in Akiok and Dog Bay, to allow for the mooring and protection of local skiffs. Such a facility would cost approximately $250,000.

The expansion of the mooring facility into a small boat harbor facility, similar to that constructed in Dog Bay, would require an additional $650,000.