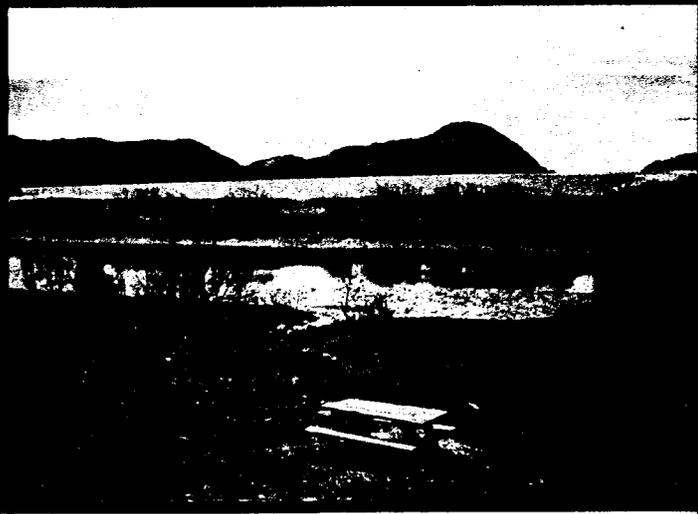
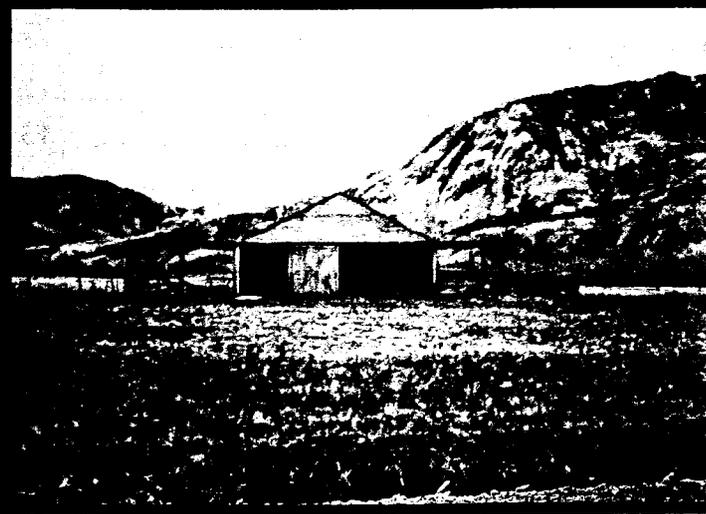
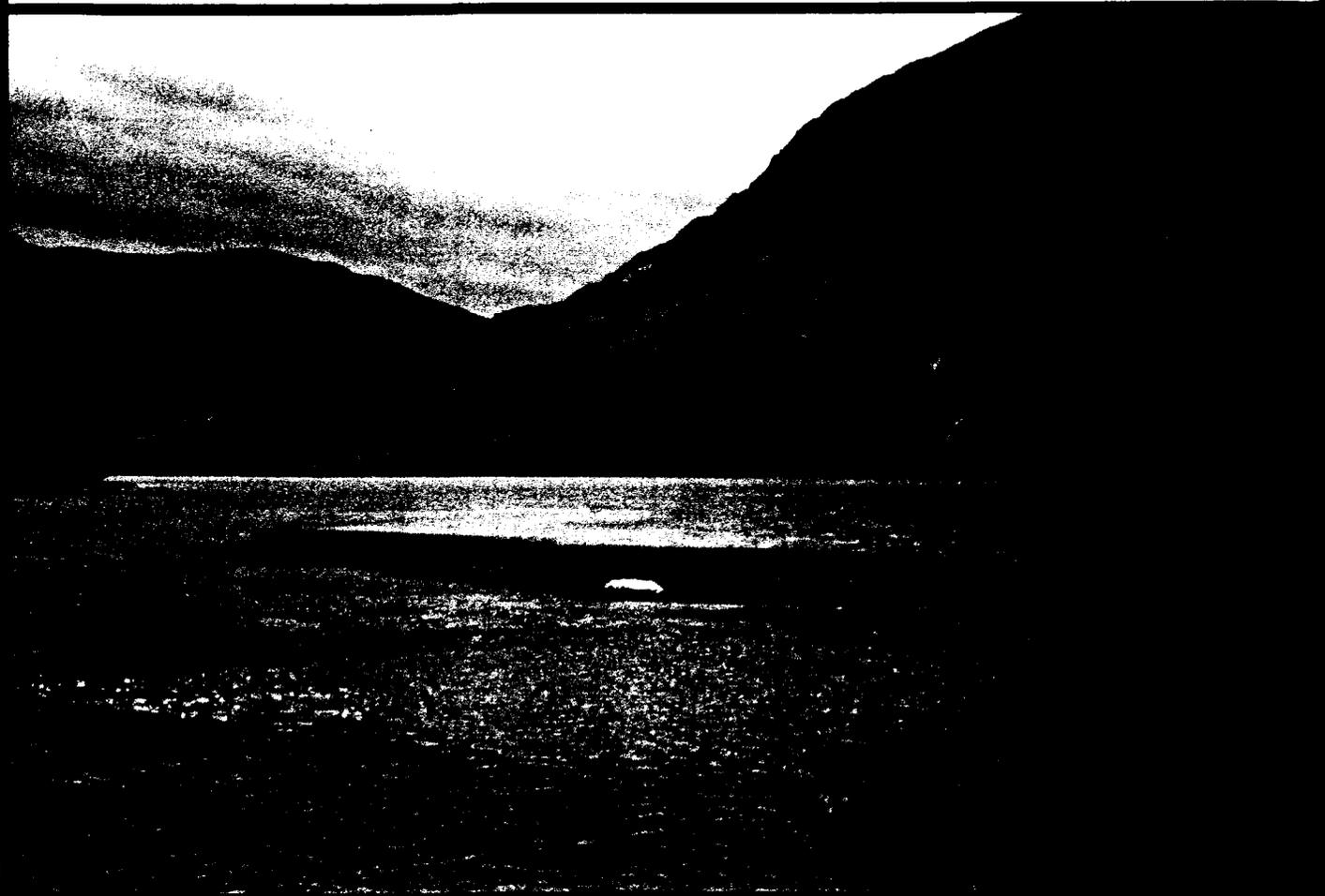


# **PASAGSHAK / NARROW CAPE AREA PLAN**



**Prepared by the Kodiak Island Borough  
Community Development Department  
June 1999**

## TABLE OF CONTENTS

1.	PURPOSE AND SCOPE.....	1
2.	CONTEXT.....	1
3.	PLAN AREA DESCRIPTION.....	2
4.	HISTORY OF THE PLAN AREA.....	2
5.	PLAN AREA CHARACTERISTICS.....	4
	A. NATURAL INVENTORY.....	4
	▪ Topography/Soils/Geology.....	4
	▪ Hydrology/Ground Water.....	4
	▪ Vegetation.....	5
	▪ Fish/Birds/Wildlife.....	5
	▪ Weather/Climate.....	6
	▪ Natural Hazards.....	7
	▪ Archeology.....	7
	B. LAND USES/LEGAL FRAMEWORKS.....	8
	▪ Zoning.....	8
	▪ Land Ownership.....	9
	▪ Recreation/State Park.....	10
	▪ Ranching/Grazing Leases.....	11
	▪ Kodiak Launch Complex (KLC).....	11
	C. ISSUES.....	12
	▪ User Conflicts.....	12
	▪ Access/Connectivity.....	13
	▪ Water Quality/Pasagshak River Subdivision.....	14
	▪ Environment/Habitat Protection.....	15
6.	GOALS AND OBJECTIVES.....	15
7.	THE PLAN.....	20
8.	IMPLEMENTATION.....	21
	BIBLIOGRAPHY.....	22

MAPS

Plan Area.....2a  
Land Use Map.....8a  
Narrow Cape/Facilities .....11a  
Zoning/Pasagshak River Subdivision .....14a

APPENDIX A.

Table 1. Salmon escapement counts in the Pasagshak River, 1980 to 1993. [1 page]

APPENDIX B.

Table 2. Statues of bird species known to occur on Narrow Cape and the Kodiak Archipelago. [6 pages]

APPENDIX C.

Pasagshak/Narrow Cape comprehensive plan survey/Survey results/Summary of survey comments. [11 pages]

APPENDIX D.

“TMLA”-AADC (Interagency Land Management Assignment). [5 pages]

“IMLT”-State Parks (Interagency Land Management Transfer). [3 pages]

APPENDIX E.

AADC Facilities. [3 pages]

APPENDIX F.

Grazing Lease Conservation Plan. [28 pages]

# **KODIAK ISLAND BOROUGH**

## **PASAGSHAK/NARROW CAPE AREA PLAN**

### **1. PURPOSE AND SCOPE**

Mindful of emerging development pressures as well as historical patterns, the Pasagshak/Narrow Cape Area Plan outlines a vision for the area and presents goals and objectives to achieve it. Ideally, this will provide for future development and growth consistent with the concerns, the needs, and the desires of Kodiak residents.

Four general “quality-of-life” goals were listed on Page 3 of the General Plan (Part 1) of the Kodiak Island Borough Comprehensive Plan, adopted in 1968 and still in effect today. It may be well to keep in mind their relevance to this planning effort:

- Preservation of the unique historical heritage that belongs to Kodiak;
- Establishment of a unique and distinct development pattern for Kodiak—one that reflects the personality of the community;
- Development of a prosperous economy, together with lowering of the cost of living;
- Establishment of ample opportunities for recreation for local citizenry.

The overall purpose of the Pasagshak/Narrow Cape Comprehensive Plan is to provide for the area’s orderly growth and development while acknowledging the historical and economic significance of existing ranching operations and grazing leases, preserving natural amenities and fish and wildlife habitat, promoting recreational values, and accommodating low density residential development corresponding to availability of services adequate to ensure public health and safety.

### **2. CONTEXT**

The Planning and Zoning Commission first discussed initiation of a land use plan for the Pasagshak/Narrow Cape area in June of 1994. That discussion resulted from a request to rezone two lots in the Pasagshak Subdivision from RR1-rural Residential One to RNC- Rural Neighborhood Commercial. At that time the Commission postponed action on the rezone request until completion of the subarea plan and its adoption into the overall Borough Comprehensive Plan. That rezone request was subsequently abandoned when the property changed ownership. Since that time permitting and groundbreaking has been undertaken for the

Alaska Aerospace Development Corporation (AADC) Kodiak Launch Complex (KLC) at Narrow Cape. Related to the KLC, two conditional use permits (CUP) have been issued for gravel extraction near the highway in the vicinity of Lake Rose Tead, and two CUP's for temporary camps to house construction workers near Narrow Cape were approved. In June of 1998 the Assembly adopted Ordinance #98-13 placing a moratorium on the granting of CUP's in the Pasagshak River/Lake Rose Tead area along the highway from the pass to the mouth of the river. The term specified for the moratorium was until completion and adoption of the Pasagshak/Narrow Cape Area Plan. The intent of the moratorium was to minimize potential negative cumulative impacts to the area resulting from individual, piecemeal projects.

There are twenty-six (26) cabins/houses on the one-acre RR1-Rural Residential One zoned lots at Pasagshak River, eighteen of which have been constructed since 1986 according to building permit records. Approximately one third (33%) of the one-acre residential lots created in the mid-70's from the Zentner homestead now contain dwellings.

### **3. PLAN AREA DESCRIPTION**

The area encompassed by the plan includes portions of Townships 30, 31, and 32 South and portions of Ranges 19 and 20 West, as demonstrated by the Pasagshak/Narrow Cape Area boundary map confirmed by the Commission after discussion at several work sessions. Generally, this area includes the Marin Range and Sacramento River drainage bordering on the north and the entirety of the Narrow Cape and Pasagshak Point peninsulas defined on the east and south by the Gulf of Alaska. It also includes the Pasagshak River drainage and Lake Rose Tead as well as the Pasagshak Road from the pass south. The western boundary is formed by the ridge on the west side of Pasagshak Bay and includes the Zentner (Chum) Creek drainage with an established ATV trail west of Lake Rose Tead. The plan area totals 30,039 acres, or approximately 47 square miles and has approximately 24.2 miles of shoreline.

It has been noted that the plan area consists of two distinct subareas: 1.) the Pasagshak River/Lake Rose Tead area from the pass to Pasagshak Point; and 2.) the Narrow Cape area from Pasagshak Point following the coastline around to Sacramento River. These subareas can have distinct climate and weather and have different historical use patterns. The first subarea has evolved with a decided recreational focus, including cabin/house development on numerous private lots on Pasagshak River. The river is seasonally very busy with recreational fishing due to traditionally strong salmon runs. The principal activity on the second subarea has remained commercial grazing of livestock. Camping and day use recreational activity has generally targeted the shoreline beaches, lakes, lagoons and rivers. More recently, construction of a rocket launch facility has altered the landscape and brought a new focus and related development.

### **4. HISTORY OF THE PLAN AREA**

There are some manifestations in the Pasagshak/Narrow Cape area of the native Koniag culture, which was established on Kodiak thousands of years before the arrival of the Russians at the end of the eighteenth century. No evidence of Russian influence has been found that might indicate

there was a settlement base in the area. But if, as stated by Chaffin (3: p. 192), the Russians were utilizing Kalsin Bay for raising and grazing livestock, animals may well have wandered over the pass to Pasagshak and Narrow Cape in the same way they do today.

The rich natural grasslands and meadows stretching on plateaus between the peaks at Narrow Cape and at the head of Pasagshak Bay made the area ideal for ranching. Two BLM grazing leases which cover virtually the entire plan area were issued by the Federal Government after the military road was completed during World War II.

The Pasagshak Road was designed by the Army in 1943 and constructed in 1944 connecting the Chiniak Highway at Kalsin Bay with defense installations and gun emplacements at Narrow Cape. Construction of the road opened up the area to ranching and homesteading. The only homestead surveys in the plan area were directly related to ranching and livestock grazing. U.S. Surveys 3506 and 4965 at Narrow Cape went to patent in the late 1960's and serve as the base for Kodiak Cattle Co. ranch. U.S. Survey 5703 (5 acres), also initially owned by Kodiak Cattle Co., was subsequently transferred to Dewitt Fields and has evolved into Bear Paw Ranch. U.S. Survey 4970 at Pasagshak River was "proved up" in 1965 by rancher Joe Zentner in conjunction with his grazing lease there, but it did not actually go to patent until 1974.

The Zentner homestead is the only piece of private property that has been further subdivided. Following rezone from Conservation zoning to "Unclassified" in 1974, it was subdivided into the 65 lots and 10 tracts of Pasagshak Subdivision. One of the original lots was further subdivided into the five (5) one-acre lots of Riverview Subdivision in 1997. Nine tracts straddling the mouth of Pasagshak River were purchased by the Alaska Department of Fish and Game in 1980 and incorporated into the Alaska State Parks.

A 625 foot high U.S. Coast Guard Loran-C navigation transmitter station was installed at Narrow Cape in the mid-1970's. This property (ASLS 89-201) consists of 87 acres with the present twenty-year lease by the Federal government from the State due to expire in the year 2017.

The Alaska Aerospace Development Corporation was granted an Interagency Land Management Assignment (ADL 226285) for managing the 3,077 acre Narrow Cape site by the State Department of Natural Resources (DNR) in 1994. Permits for the AADC Kodiak Launch Complex (KLC) were issued in 1997. The first rocket was launched from the RLF site in November of 1998.

Typical of Southcentral Alaska in general, the plan area has experienced this century the defining impacts of both natural and man-made disasters. The huge volcanic eruption at Katmai in 1912, ninety miles to the west, blanketed the area with as much as two feet of ash. The powerful Good Friday earthquake in March of 1964 caused a three-foot uplifting in the area as well as loss of grazing livestock. Human life and property damage was minimal in the area only because it was sparsely populated at the time. The Exxon Valdez oil spill in March of 1989 soiled the beaches and impacted fishing in the area. While no direct correlation has been made, rancher Bill Burton recalls four dead whales beaching within his grazing lease at Narrow Cape during the summer of 1989 described as a very unusual occurrence.

## 5. PLAN AREA CHARACTERISTICS

### A. NATURAL INVENTORY

- **Topography/Soils/Geology**

The mountainous terrain typical of northeastern portion of Kodiak is the predominant upland feature of the plan area. The irregular coastline has prominent headlands and sea cliffs and many narrow, steep-walled bays. The northern boundary of the plan area is defined by the Sacramento River valley and the Marin Range with peaks exceeding 2,000 feet elevation. Shaft Peak is the highest point within the plan area at 2,137 feet approximately two miles north of Pasagshak Bay.

The far southwestern portion of the plan area encompasses Narrow Cape itself and is the site of the Kodiak Launch Complex and otherwise covered by the grazing lease of Kodiak Cattle Co. This is a low-lying coastal area typical of the Gulf of Alaska with the surface topography characterized by a series of gently undulating, northeast-southwest trending ridges 150-350 feet in elevation. The ridge tops are broad, and the ground surface on the ridgetops relative level with very little topographic relief. The ridges terminate on the southwest end in vertical bluffs of exposed silty fine sandstone at the beach. The northeast ends of the ridges slope gradually down to the beach and lagoons on the eastern shore of Narrow Cape.

The mountainous terrain in the plan area consist predominately metamorphic rocks (formed from preexisting rocks rather than sedimentary processes). Sandstone bedrock predominates along the coast, which is generally poorly indurated, soft, and friable silty sandstone. (2: pp. 3-8)

The upland soils in the area are described by USDA (1960) as being in the Kodiak soils series. They developed from weathered bedrock (sandstone) and were covered by volcanic ash in 1912. A general surface litter four inches thick of partly decayed vegetation has accumulated on the volcanic ash. Soils in the valleys are a combination of Saltery peat and Ugak silt loam soils (USDA 1960). (2: pp. 3-9 & 10).

- **Hydrology/Ground Water**

Two principal freshwater systems border the plan area. The Sacramento River flows easterly from the Marin Range to the ocean. Near its mouth, it fans out into a series of shallow lakes and lagoons, some with tidal influence. Paralleling the main road is the Pasagshak River/Lake Rose Tead system and the streams feeding it, flowing southerly into easterly side of Pasagshak Bay. Both of these river systems support strong salmon runs.

Typical of the Kodiak Archipelago, other freshwater streams, year-round and intermittent, flow at regular intervals from the mountainous highlands to the sea. Zentner (Chum) Creek defines the western boundary of the plan area, flowing southerly into Pasagshak Bay. A well-worn ATV/horse trail follows it back into the mountains. An all-season stream flows past Bear Paw Ranch to the beach, supporting a somewhat interrupted silver salmon run due to parched culverts under the road. Several other continuous streams flow easterly from the peaks across or near Kodiak Cattle Co. ranch to the Gulf of Alaska east of Narrow Cape.

Freshwater Lakes at Pasagshak Point include Bull and Lupine Lakes. A larger, unnamed freshwater lake near Shaft Peak is virtually the only high-mountain lake in the plan area and is accessible by hiking or horseback. East and West Twin Lakes are shallow freshwater lakes at the terminus of the road near Fossil Beach. North of Narrow Cape along the eastern coast of the plan area are salt water influenced lagoons known as Barry Lagoon and Triple Lakes. Yet further north are two unnamed lagoons near the beach at the mouth of the Sacramento River. Groundwater at lower elevations generally occurs in shallow, discontinuous perched water tables within the peat, and at the bedrock interface. Flow along the surface often has been observed to disappear beneath the peat but still be heard as it flows along the top of the bedrock beneath. Water bearing zones are also present within the bedrock. (2: p. 9).

- **Vegetation**

Area vegetation is categorized as either wetland or non-wetland. Closed alder shrubland and mixed alder-willow shrubland are the prevalent nonwetland vegetation coverage above meadowlands. These occupy well-drained, upland areas and road margins that have been recolonized. Patches of closed Sitka spruce forest are common in the southeast portion of the plan area at Narrow Cape. Otherwise open Sitka spruce woodland, with less coverage, occurs sparsely throughout the area on lower portions of mountain ranges, hills and valleys above floodplains and wetlands at elevations ranging from 50 to 600 feet. The dominant upland vegetation type occupying most benchlands is hairgrass-mixed forb meadow near the coast and the same mixed with willow on benches away from the coast and on slopes of drainageways. Lupine meadows occupy coastal reaches of nonwetlands above the ocean cliffs.

Wetland vegetation types include shrubs, persistent emergents, emergent mosses and lichens. Wetland types commonly referred to as bogs, muskegs, fens, marshes, and swamps, as well as lakes and ponds less than 20 acres are part of the palustrine system. Permanently flooded waterbodies, such as Twin Lakes, manifest rooted vascular aquatic vegetation. Saturated emergent meadows generally consisting of mineral soils overlain by a shallow organic layer have sedge forb moss prevalent. Saturated tall shrub thickets and dwarf shrub moss occupy depressional areas on benchlands, gentle slopes and hillside seep areas. Shrub meadows and shrub bogs are wetlands dominated by low, broad-leafed deciduous shrubs. In saturated bog areas, persistent emergents and mosses form a predominantly sedge-moss wetland. (2: pp. A-1 through A-7).

- **Fish/Birds/Wildlife**

The Pasagshak Bay, Pasagshak River and Lake Rose Tead system is one of the most highly utilized combination sport/subsistence/commercial fisheries on Kodiak. Healthy sockeye (red) and coho (silver) salmon runs along with road access from town and a well maintained State Park facility combine to make it one of the most popular fishing destinations on the island. 1980-1993 salmon escapement counts for the Pasagshak River are indicated in Table 1 of the Appendix. Chum and pink salmon also spawn to a lesser degree in this river system, and Dolly Varden char can be found as in most of the freshwater streams in the plan area. 1997 sport fish figures compiled by the Department of Fish and Game indicate a total of 2,973 salmon harvested from the Pasagshak River system in 5,931 angler-days. The Sacramento River also supports a coho salmon run, but is far less utilized since there is no road access. A stream flowing from the

mountains into the northwest corner of Pasagshak Bay is locally known as Chum Creek because it supports a run of chum salmon.

Lakes in the area stocked with rainbow trout by the Alaska Department of Fish and Game include Bull and Lupine Lakes on Pasagshak Point and East Twin Lake at Narrow Cape.

The plan area is used seasonally by 143 terrestrial and marine bird species, as determined by a 1994 study for the rocket launch facility done for AADC by the Environmental and Natural Resources Institute (ENRI) of the University of Alaska. Identification of bird species and frequency is contained in Table 2 of the Appendix, with columns 1-4 summarizing the status of the 221 bird species known to occur on the Kodiak Island archipelago, and columns 4-8 documenting the 143 species occurring on Narrow Cape and method of observation. This information of predominately terrestrial birds includes direct observations conducted from July 1-7, 1994 and incorporates data from historic U.S. Fish and Wildlife Service Breeding Bird Survey (BBS) and the national Audubon Society's Christman Bird Count (CBC) as well as interviews with local biologists and residents.

Marine birds were also surveyed as part of this 1994 research project. The Narrow Cape/Ugak Island area was identified as biologically important for marine species including sea ducks, gulls, and alcids. The shallow waters and strong currents of Ugak Pass are attractive to marine birds year round. King eiders, Steller's eiders, harlequin ducks, oldsquaw, black scoters, surf scoters, and white-wing scoters occur in large numbers from November through May. (4: pp. 37-48)

Kodiak Island supports twelve species of wildlife mammals, six native (brown bat, tundra vole, red fox, brown bear, short-tailed weasel, and river otter) and six introduced (snowshoe hare, red squirrel, muskrat, beaver, Sitka black-tailed deer, and mountain goat). All twelve can be observed in the plan area. Mountain goat, the rarest, is documented by a recent poaching episode near Shaft Peak that resulted in conviction of the poachers. Horses, cattle, and bison roam on the two grazing leases blanketing the area; and elk are raised in pens at the Kodiak Cattle Co. ranch at Narrow Cape.

Marine mammals common to the area include the Stellar sea lion, the harbor seal, the sea otter, and the Northern fur seal. One of the seventeen identified sea lion haulouts on Kodiak, frequented by approximately 400 sea lions, is located on Ugak Island two miles south of Narrow Cape.

Several species of whales are observable in the Gulf of Alaska and Pacific Ocean from Narrow Cape and Pasagshak Point. The most regular appearance is that of California grey whale, whose migratory path takes most of the population nearshore along the eastern edge of Kodiak Island in the spring and fall. Numbers are highest during April, May, November and December when they pass within a half mile of shore. Humpback whales, killer whales, and porpoises are also observed. Less regular are dolphins, right whales and pilot whales. (2: pp. 3-20 & 21)

- **Weather/Climate**

The weather in the plan area is typical of Kodiak Island's maritime climate. This is characterized by limited daily and annual temperature ranges, frequent clouds and fog, and high

precipitation. The annual mean temperature is 40 degrees F (+4C). Summer temperatures seldom rise above 80 degrees F (+25C). Subfreezing temperatures occur regularly from October through April and, at higher elevation, for longer periods. The average annual air temperature variation is about 12.5 degrees F. Mean annual precipitation is about 57.4 inches (including equivalent snowfall) with about 72 inches of snow. Strong surface winds persist year round, with prevailing and strongest winds from the southeast. Average annual wind speed is about 9.3 knots, with the mean strongest at about 52 knots. Average and peak winds at Narrow Cape, with open exposure to the southeast, are stronger.

- **Natural Hazards**

A principal source of geologic hazards is seismic activity and associated seismic sea waves. The region is located near the margin of the North American and Pacific Tectonic Plates. A series of northeast to southwest trending faults bisect Narrow Cape approximately one mile west of the Kodiak Launch Complex as part of a major system that crosses the southeast coast of Kodiak Island. The region is seismically active with low intensity earthquakes frequent. (2: p. 3-9)

The Good Friday Earthquake in March of 1964, registering 9.2 Richter, resulted in an uplift of two to three feet at Narrow Cape. According to a report from Joe Beaty, who observed the quake from the roof of his ranch home at Narrow Cape, a tsunami surged over low-lying parts of the ranch as much as three-quarters of a mile inland from the beach. It deposited vast quantities of driftwood, stopping just short of the ranch. Seven head of cattle were drowned. (4: Vol. 2, p.7)

Non-tsunami flooding has not been reported to be a major hazard in the area with most rainfall and snowmelt channeled into existing valleys and ravines. However, with population growth and construction of new houses along the Pasagshak River, adjacent to shifting river channels and susceptible to lake overflow and tidal fluctuations, the impact of floods in terms of property and human loss may increase.

There is evidence of past landslides along the road. A 1,400 foot long landslide has been identified on slopes 15%-30% near the Ranch Road intersection with Pasagshak Point Road, apparently caused by rotational slumping of the poorly indurated sandstone (2: p. 3-9). A steep chute just north of and opposite the old bridge remnants at the Pasagshak Subdivision gives probably evidence violent avalanches originating on the radically steep slopes of the unnamed 1,800 foot high peak located only a half-mile from sea level.

- **Archeology**

Not many archeological sites have yet been identified in the plan area due in great measure to the fact that there have been very few investigations conducted there. As part of the rocket launch complex site preparation, the Alaska State Office of History and Archeology conducted an archeological and historic resource survey of the Narrow Cape area in 1994. As a result of that, two archeological sites (KOD-081 and KOD-441) and one historic World War II era bunker complex (KOD-456) were identified within one mile of proposed construction.

Protection of archeological sites not currently known is as important as protection of identified sites. As noted in a correspondence from the curator of the Kodiak Alutiiq Museum, there are

several indications that this is an area with an undiscovered wealth of archeological resources. The shores and waterways are likely sites, as are several inland regions that may have previously been at shoreline. Unlike most areas of the archipelago, which are gradually subsiding with time, the eastern edge of Kodiak Island is rising. Ancient shorelines have not been washed away, but are preserved in inland areas. Since native ancestors always build settlements on the coast, inland areas in the Pasagshak region may hold ancient settlements not preserved elsewhere. Such sites are rare and have the potential to shed light on the origins and evolution of Alutiiq societies. There is also concern for the destruction of archaeological deposits due to road improvements, increased public use, private land development and wanton vandalism. Careful identification and documentation of sites to obtain baseline data information on their condition can help guard against this.

## **B. LAND USES/LEGAL FRAMEWORKS**

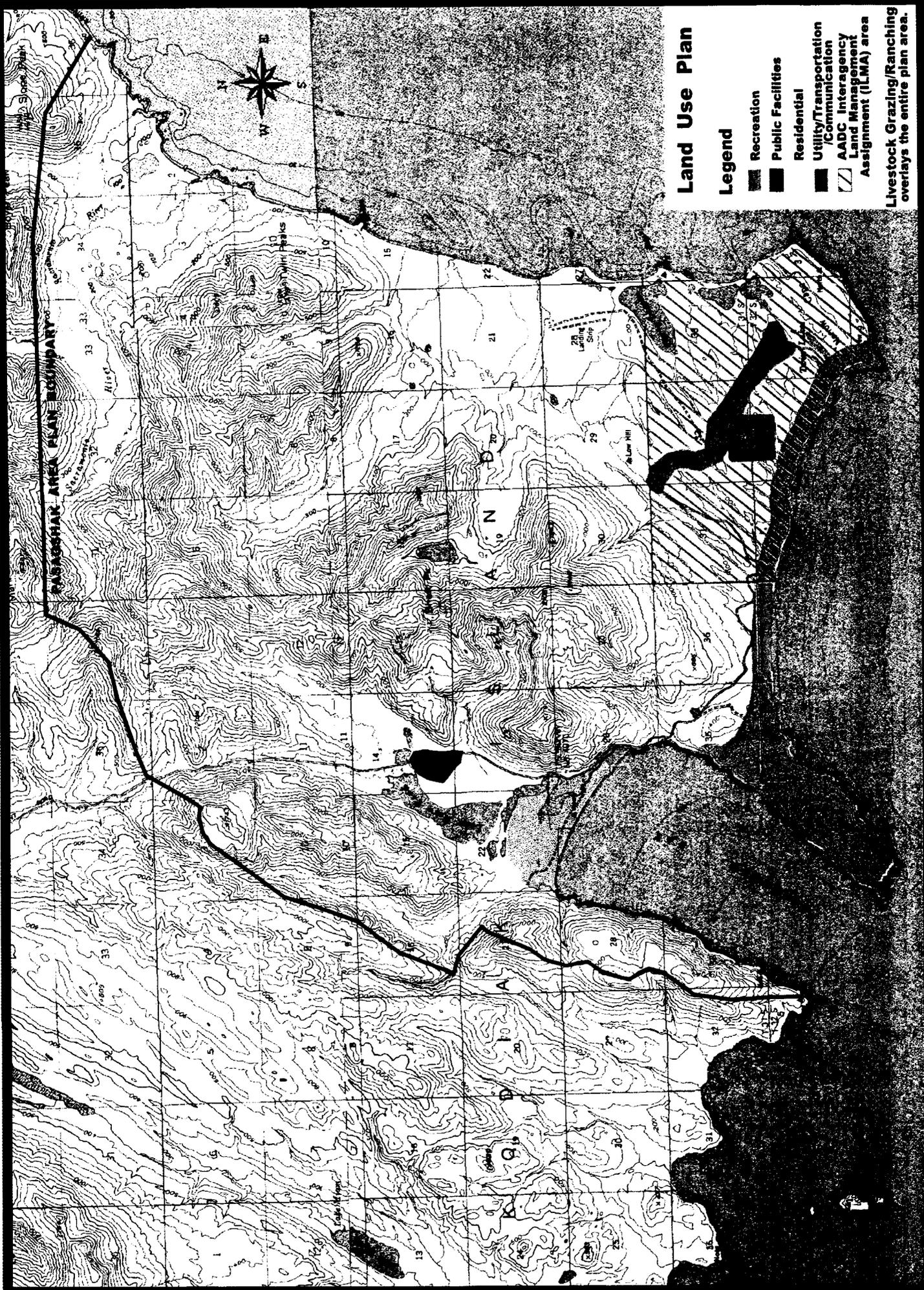
- **Zoning**

The entire plan area is zoned C-Conservation with the exception of Pasagshak Subdivision at the mouth of Pasagshak River created from the Zentner homestead (U. S. Survey 4970) in 1975. Contained within Pasagshak Subdivision are seventy-nine (79) lots and tracts zoned RR1-Rural Residential One. U.S. Survey 4970 was rezoned from C-Conservation to U-Unclassified by Ordinance 74-29-0 in August of 1974. Ordinance 80-9-0 changed the name of the U-Unclassified zoning district to Rural Residential, which then evolved into the RR1-Rural Residential One zoning district by Ordinance 83-15-0.

Potential new zoning districts have been suggested and discussed both at many public Commission worksessions and in survey responses received back from individuals. Suggestions have included NU-Natural Use, RNC-Rural Neighborhood Commercial, and perhaps some kind of agricultural zoning district.

Identification of the tracts at the mouth of Pasagshak River, which have been incorporated into the Alaska State Park System, as a park with recommendation for future rezone to NU-Natural Use to reflect that is a logical course. Other prime recreational areas with natural amenities, such as the stretch of beach between Pasagshak Point and Fossil Beach/Narrow Cape, have been mentioned as appropriate for park status and NU-Natural Use zoning. Eighty two percent (82%) of survey respondents favored some NU-Natural Use zoning in the area. Objectives of the recreational land use goal include initiating rezone of existing State Park land to NU-Natural Use, and exploring potential rezone to NU-Natural Use of State owned land uniquely suited because of natural amenities and habitat and recreational value. However, without a first step initiated by the State, as land owner, to incorporate them into the state park system, the established focus of these areas remains livestock grazing within active grazing leases and such a rezone may be premature.

RNC-Rural Neighborhood Commercial zoning was also widely discussed. Proponents targeted the area of the developing recreation/residential subdivision near the mouth of Pasagshak River as suitable for limited retail/service uses to support a growing population. However, the concept of commercial zoning was opposed by the majority of property owners in the subdivision at both



RAGSDALE AREA PLAN BOUNDARY

### Land Use Plan

#### Legend

-  Recreation
-  Public Facilities
-  Residential
-  Utility/Transportation/Communication
-  AADC Interagency Land Management Assignment (ILMA) area
-  Livestock Grazing/Ranching

Livestock Grazing/Ranching overlays the entire plan area.

Commission worksessions and in survey responses. Eighty one percent (81%) of survey respondents opposed RNC-Rural Neighborhood Commercial zoning in the area.

Agricultural zoning was proposed as appropriate for the area by a number of individuals actively involved in ranching, livestock raising, and farming. After discussion at worksessions, the Commission concluded that it might serve better to reinforce the existing zoning as it applies to ranching and commercial grazing. All agricultural activities and structures, with the exception of commercial livestock grazing, are already presently listed as permitted principal uses in the C-Conservation zoning district. A code revision initiated independent of action on this area plan can remedy the perceived deficiency. This would make commercial livestock grazing, as well as other uses discussed, such as churches, if appropriate, permitted principal uses in the zoning district. This would avoid creating an entirely new zoning district applicable, at most, to only a handful of landowners. Consistent with this, a specific land use goal promotes agriculture and ranching in the area, recognizing the historical significance of existing ranching operations and grazing leases as long-term investments with economic importance to the region. And an accompanying objective would acknowledge that all agricultural uses, including commercial grazing, should be permitted outright in the C-Conservation zoning district.

Five requests for conditional use permits (CUP's) in the C-Conservation zoning district have been approved in the plan area in recent years. These include a rocket launch facility as a transportation/utility facility (Case 95-020), two gravel extraction sites as non-recreational mineral extraction each with a 20,000 cubic yard limit (Cases 97-021 and 97-026), a lodge/camp that can serve as a construction camp (Case 98-016), and a RV park that can serve as a construction camp (Case 98-012). Concern about potential negative cumulative impacts resulting from individual gravel extraction sites has resulted in a moratorium imposed by the Assembly on issuance of conditional use permits (CUP's) in the Pasagshak River/Lake Rose Tead area until completion of this plan. Gravel extraction at Lake Rose Tead that would exceed the 20,000 cubic yards permitted by the CUP has been strongly opposed by the public at meetings and in survey responses.

- **Land Ownership**

The vast majority of land in the plan area was transferred to the State of Alaska from the Federal government after selection in the 1970's. The area is covered by two State grazing leases formerly administered by the Federal Bureau of Land Management (BLM) and now by the State Department of Natural Resources.

There is only a very limited amount of privately owned land in the plan area. This consists of the four original U.S. Surveys, two of which (USS 4970 and USS 4935) originated from and supported the grazing leases, and two of which (USS 5703 and 3506) were five (5) acre trade and manufacturing sites, also directly related to the grazing leases. Of these, only USS 4970 (originally 122 acres) has been further subdivided and now consists of 79 lots/tracts, nine tracts of which form Pasagshak State Park at the mouth of the river. Leisnoi Native Corporation owns a small sliver of land within Township 30 South, Range 20 West along the Pasagshak Bay Road at the pass.

- **Recreation/State Park**

In terms of numbers of users, recreation is clearly the most common use of the plan area. Of recreational uses, fishing is the most popular. The Pasagshak River/Lake Rose Tead has traditionally been one of the most heavily used sportfisheries on the Kodiak road system. Sportfish figures compiled by the Department of Fish and Game indicate a total of 2,973 salmon harvested from the Pasagshak River system in 5,931 angler-days in 1997, a decrease from the years 1986-1990. Sport fishing for salmon here was early established as demonstrated by ADF&G figures from 1973 showing a total of 2271 salmon taken and noting that 53% of the silver salmon caught by roadside anglers in 1973 were taken from the area encompassed in the Zentner homestead (USS 4970). Presently, Pasagshak River ranks second on the road system to the Buskin River for number of Coho (Silver) and Sockeye (Red) salmon harvested.

Boating in Pasagshak Bay is a common denominator for saltwater sportfishing, including halibut and salmon trolling, and subsistence net fishing for salmon. There is no improved boat launch in the area. Most boats launch from a beach between the mouth of the river and the steep switchbacks heading up the hill toward Narrow Cape. Along with garbage receptacles, latrines, picnic areas, campsites, and firepits, a boat launch was identified in the area plan survey as a needed improvement.

Other popular recreational uses listed in the survey include more passive activities such as bird watching, walking/hiking, whale watching, photography, plants/berries, picnicking and camping. ATV riding, and hunting and boating are popular recreational activities less passive in nature.

Two parcels consisting of nine tracts totaling approximately twenty (20) acres were purchased from Joe Zentner in 1980 with Department of Fish and Game funds generated by sportfish license sales. The Pasagshak River State Recreation Site was developed shortly thereafter by Alaska State Parks with installation of a latrine, parking areas and camping/picnicking sites along the river. In 1996 five (5) additional acres were added to the state park system by administrative designation.

As reported by the District Office, the state recreation site at Pasagshak River is a very popular destination for Kodiak residents, and more recently, has attracted increasing numbers of nonresident visitors. State Park visitor figures for the summer season (June-September) show a trend of increased use:

<b>YEAR</b>	<b>VISITS LOGGED</b>
1996	5,993
1997	9,514
1998	11,848

Fossil Beach/Narrow Cape and Pasagshak Point were the recreational areas most commonly identified for future State Park expansion in the plan area survey. At this time, no park expansion has been proposed. The land use map designates Pasagshak Point, as well as the beaches stretching along the southern edge of Narrow Cape from Pasagshak Point to Fossil Beach, as recreational, acknowledging existing recreational value and use.

- **Ranching/Grazing Leases**

Grazing leases are an integral part of the history of the area. Two of the original Federal grazing units blanket virtually the entire plan area. The Narrow Cape Unit covers the east portion of the area including the Sacramento River Valley and Marin Range to the north and Fossil Beach/Twin Lakes to the south. The adjacent unit on the west is the Pasagshak Unit covering Pasagshak River/Lake Rose Tead extends beyond the plan area to the west and is also bordered by the Marin Range at the pass to the north. Grazing/ranching, as the area's principal traditional use, has been designated overlaying the entire plan area on the land use designation map.

The rich natural grasslands and meadows stretching on plateaus between the peaks at Narrow Cape and at the head of Pasagshak Bay made the area ideal for ranching. Two BLM grazing leases covering the plan area were issued after the military road was completed during World War II. The Narrow Cape ranch and surrounding 22,000-acre grazing lease was originally held by Sid Olds in the 1940's. Acquired by Joe Beaty in the early 1950's, the lease and ranch were ultimately transferred to Bill and Kathy Burton (Kodiak Cattle Co.) in 1965. The 25,000-acre grazing lease in the Pasagshak/Portage Bay area, originally owned by Joe Zentner, was transferred to Omar Stratman (Northland Ranch) in 1969.

Entitlement selection of the major part of the plan area by the State of Alaska resulted in administration of the grazing leases passing from BLM to the Division of Agriculture within the Alaska Department of Natural Resources (ADNR). The conservation plans of both of the area's grazing leases, outlining development and management objectives as well as projected herd levels and timing and location of grazing are intended to be attached as appendices.

- **Kodiak Launch Complex (KLC)**

The Alaska Aerospace Development Corporation was granted an Interagency Land Management Assignment (ADL 226285) for managing the 3,077 acre Narrow Cape site by the State Department of Natural Resources (DNR) in 1994. Permits for the AADC Kodiak Launch Complex (KLC) were issued in 1997. The first rocket was launched in November of 1998.

As of May of 1999, Phase 1 including road improvements, utility infrastructure and site work had been substantially completed. Contract completion date for Phase 2, including construction of the Launch Control Center, the Payload Processing Facility, the Integration Processing Facility, the Spacecraft Assemblies Transfer Facility, Launch Pad One and paving and final site work is August of 1999. Contract completion date for Phase 3, including the Tower Service Structure is November of 1999.

A 3-phase power line north of the Coast Guard Loran Station has been extended by Kodiak Electric to the Launch Control and Management Center and the Payload Processing Facility. Overhead single-phase power serving the ranch has been upgraded and extended.

The purpose of the Kodiak Launch Complex is "to provide infrastructure for placing telecommunications, remote sensing, military, scientific, and research payloads in polar low-earth orbit." Ultimately, nine (9) launches a year will be scheduled, with teams of up to one hundred (100) professionals onsite four to six weeks prior to launches. (2: p. vi)



**NARROW CAPE AREA MAP  
EXISTING USES**

A need for multiple-guest occupancy has been articulated by AADC based on the desire expressed by customers for housing near the Kodiak Launch Complex. Camps, lodges, retreats and RV parks have been previously granted conditional use permits for provision of housing or lodging in the C-Conservation zoning district, two of which CUP's were granted for temporary construction camps within the plan area.

## C. ISSUES

- **User Conflicts**

The consensus expressed at Commission worksessions and in survey responses is that the predominant uses of the plan area consisting of recreational activity, ranching/livestock grazing, rocket launch facility development, and the residential/recreational subdivision have been and continue to be compatible. One property owner has expressed exasperation with the impacts on grazing livestock on his private property. However, many property owners with cabins as well as recreationalists, recognizing the historical tradition of grazing leases, expressed the sentiment that cattle, horses and buffalo roaming unconfined in the area give it character as well as bountiful and gratuitous fertilizer.

Concern has been expressed about potential conflicts between established uses and the industrial nature of the Kodiak Launch Complex and related uses. Siting the KLC in this remote area has not been without controversy and has spurred debate regarding future uses and impacts in the plan area, including transportation, storage and disposal of potentially hazardous materials. Concern about potential negative cumulative impacts resulting from individual gravel extraction sites has resulted in a moratorium imposed by the Assembly on issuance of conditional use permits (CUP's) in the Pasagshak River/Lake Rose Tead area until completion of this plan.

A recommended land use goal stated in the plan is that additional industrial activity in the plan area not directly related to the KLC be prohibited. It is also recommended that additional gravel extraction be limited to existing sites and be permitted only with approval of an engineered gravel plan that should include proposals for reclamation. In addition to the two sites for which CUP's have been granted, two other historical use extraction sites have been acknowledged, essentially "grandfathered" as nonconforming uses controlled by Chapter 17.36 of Borough code. These two are sand extraction from the beach in front of Bear Paw Ranch and small-scale gravel extraction from Lot 1, Block 2 of Pasagshak River Subdivision.

A user conflict mentioned repeatedly involves motorized vehicles, usually all-terrain or off-road vehicles (ATV's or ORV's). Often the noise associated with motorized vehicles, whether land or water, disrupts more passive, quiet recreation activities. In addition, ranchers as well as hikers, campers, bird watchers and sport fishers have noted the erosion and degradation of streams and habitat caused by indiscriminate use of ATV's. Since the land is State owned, this is perceived as destruction of a shared public resource. It is acknowledged that regulation and enforcement in such a remote area is difficult at best. Presently, the Kodiak Fish and Game Advisory Committee has a working group, including representatives from the ATV user group, studying the ATV issue that hopefully will lead to recommendations for use and regulation island-wide. Two objectives under the stated goal to protect and enhance the environment specifically address ATV use. The first recommends pursuit of a Borough ordinance requiring licensing and

restrictions, and the second would designate and improve a select number of existing trails for ATV use in the interest of controlling and minimizing erosion and scarification of the landscape.

- **Access/Connectivity**

The road constructed by the military during World War II remains the principal access route to and within the plan area, connecting with the general Kodiak road system at Kalsin Bay. Variousy called Pasagshak Road, Pasagshak Bay Road and Narrow Cape Road, it is operated and maintained by the Alaska Department of Transportation and Public Facilities (ADOT&PF).

Consistent with the plan's access and transportation goal to upgrade and maintain roads, the Department of Transportation has been actively pursuing major improvements to the State maintained portion of the road accessing the Kodiak Launch Complex to accommodate large trucks and trailers carrying equipment and payload. A strategic section of road targeted for improvements is the steep switchback at Pasagshak Point just past Pasagshak Bay.

Concern has been voiced about lack of upkeep and maintenance on the "Fossil Beach" section of road at the terminus of Narrow Cape beyond the rocket launch pad site. This was requested for inclusion into the Spot Improvement Project scheduled by ADOT for FY 1999. The Department of Transportation acknowledged more potential road improvements than time and budget could address in FY 1999 and emphasized a priority was placed on improvements to sections providing access to the KLC. However, proposed projects can be included in a nomination packet from the Aerospace Development Corporation to be submitted before summer. This might also include repair and upgrade to perched road culverts which frustrate salmon spawning at Bear Paw Ranch Creek due to improper installation and restoration of road cattle guards separating the grazing units, both mentioned often at Commission worksessions.

Borough road right-of-ways with Pasagshak Subdivision are unimproved. These include Riverview Drive and Mary Court, which are cul-de-sacs, Bayside Drive accessing the gated bridge across the river, and Bayview Drive paralleling the beach.

The original bridge across Pasagshak River was built in the late 1960's by a grazing leaseholder to provide controlled access to the west side of the river for ranching purposes. This old bridge failed in the late 1980's and consists now of remnants accommodating only foot traffic. An attempt by local property owners to form a road service district to facilitate construction of a new bridge approximately ¼ mile downstream from old bridge failed in 1990. Subsequently, in 1993, a private non-exclusive right-of-way permit for construction and maintenance of a bridge across the river was issued by the Department of Natural Resources, Division of Lands. The term of the permit is twenty-one (21) years, with nine (9) year renewal terms thereafter contingent on structural inspections. The 155-foot long bridge connects Borough rights-of-way on the west and east sides of the river providing vehicle access to the forty-two lots on the west side of the river. The gated bridge is operated and maintained by a private association, with keys available upon payment of a membership fee.

A sixty (60) foot wide public right-of-way easement was issued by the Division of Lands in 1996 for an existing dirt road connecting the west end of Baview Drive with proposed Riverview Subdivision, which created five lots out of one of the original subdivision tracts in 1997.

An issue of concern expressed at worksessions was insuring future public pedestrian access to and along beaches, which is stated as a plan objective. Access over state lands is a public right as long as there is no damage to or interference with grazing lease operations. A plat note on the original Pasagshak Subdivision (Plats 74-22 and 75-17), carried over to subsequent subdivisions, is that all lots in the subdivision are subject to a ten (10) foot wide pedestrian easement along the mean high water line of Pasagshak River.

- **Water Quality/Pasagshak River Subdivision**

The Zentner homestead (U.S. Survey 4970) consisted of 122 acres at the mouth of Pasagshak River. Rezoned from C-Conservation to Unclassified, and subsequently to RR1, it was subdivided by Plats 74-22, 75-06 and 75-17 into 65 lots and 10 tracts in 1974-75. Since these properties are virtually at sea level with a relatively high water table, concern has been expressed about water quality to sustain growing residential development.

Sixteen (16) recreational cabins or residences have been constructed on the forty-two (42) RR1-zoned lots on the west side of the river across the bridge in Blocks 1 and 2 of Pasagshak River Subdivision, 2<sup>nd</sup> Addition. There are seven (7) more cabins/residences along the Pasagshak Bay Road in Blocks 1 and 2 of Pasagshak River Subdivision. There are two small cabins and a larger recreational residence on three of the five lots in Riverview Subdivision.

According to local contractors with property and cabins existing or under construction on the bay, several of the cabins/residences along the road on the east side of the river have good operating wells, some drilled and some shallow surface wells. No wells have successfully been dug for cabins on the beach side of the bridge. One attempt to drill there went over 100 feet deep and found only salty water. The common source of potable water is collection system. According to their knowledge, there are 4-5 septic systems of the road (east) side of the river and 7-8 operating septic systems on the beach (west) side of the bridge. The sand there is reported to have good perc characteristics with an average water table depth of 8-10 feet. This indicates that of twenty-six (26) existing recreational/residential structures, approximately twelve (12) are on septic systems.

Water quality as regards on-site water supply and sewage disposal at Pasagshak Subdivision was an issue from the outset as evidenced by a letter dated September 17, 1975 from the State Department of Environmental Conservation to the Borough Planning Director at the time. This letter outlined ADEC requirements for residential subdivision development, including minimum lot size, soils classification and percolation requirements, minimum eight (8) foot distance between surface and ground water, and minimum separation requirements and topography. A file note indicates that this information was supplied.

According to the building code as presently administered, prior to issuance of a certificate of occupancy, dwellings on the road system require installation of septic systems by an "approved installer." Engineered systems are not required except by plat note, which is not the case with the Pasagshak River subdivisions. It appears that over half of the twenty-six (26) existing dwellings in the subdivision utilize outhouse/privy systems. While this may be consistent with seasonal recreational cabin use, more residences in the area are being designed and built for longer term, even permanent, use. There has been concern that, at some threshold, population

will increase to the point that density will exceed filtration and absorption capacity of the ground and problems will be encountered. For that reason, the environmental objective stated first is to require engineered documentation that well and septic systems can safely be provided on site to support increased residential development.

- **Environment/Habitat Protection**

The environmental qualities and habitat value of the Pasagshak/Narrow Cape area are well established. Several have been previously referenced in this report, and the environmental goal and objectives stated in Chapter 6 seek to ensure that these qualities and values are maintained. Included among these are recommendations to control indiscriminate ATV use that results in erosion, degradation of streams, scarification of landscape and problems with grazing leaseholds. Another objective seeks to prohibit development that results in increased shoreline or surface erosion and that creates drainage problems of degrades water quality. Protection of fish and wildlife habitat calls for river bank and shoreline stabilization and maintenance of anadromous streams and lakes. It has been suggested that developed parking areas with access to footpaths may help protect erosion and damage to stream banks. A zoning ordinance revision could require greenways and buffers around lakes and rivers identified for recreation and fish habitat values.

## **6. GOALS AND OBJECTIVES**

The purpose of these goals and objectives is to chart a future course for the Pasagshak/Narrow Cape area by serving as a guide for decision making in order to maintain preferred conditions or achieve ideal future conditions. The goal statements identify a general level of development that property owners, managers, and users want to see occur as expressed at public hearings, or by written comment. Objectives narrow the focus of that broad scope by suggesting the means for achieving desired goals by describing more specific actions to be taken.

The 1978 Kodiak Island Borough Regional Plan and Development Strategy (unadopted) stated:

*“It is important for the decision-making bodies to be aware of public desires and the degree to which they conflict with factual data so that the finally adopted goals and objectives can accommodate, to the greatest extent possible, the perceived needs of the public, as well as the actual situations as they exist.”*  
(Page 20)

Consistent with the spirit of this statement, and based on public input, the following goals and objectives have been formulated for the Pasagshak/Narrow Cape area.

### **Environment**

Goal: Protect and enhance natural environmental features, including water resources.

- Objectives:
- Reinforce the subdivision platting requirement for engineered documentation that well and septic systems can adequately and safely be provided on site to support residential/recreational development.
  - Prohibit removal of gravel from residential properties except what is necessary for reasonable lot development or what might otherwise be documented as a “grandfathered” historical use. For example, Lot 1, Block 2, Pasagshak River Subdivision qualifies for “grandfathered” gravel source designation.
  - Encourage overburden and gravel excavated from road construction to be targeted for site development, driveways and access roads.
  - Promote a zoning ordinance change that would require greenways and buffers around lakes and rivers identified for recreation and fish habitat values.
  - Through Coastal Management Program review as part of zoning compliance permit issuance for residential development, prohibit development that results in increased shoreline or surface erosion and that creates drainage problems or degrades water quality.
  - Pursue a Borough ordinance requiring licensing for ATVs and restricting off-road vehicle and ATV use that results in erosion, degradation of streams, scarification of the landscape and problems with grazing leaseholds.
  - Designate a select number of existing trails specifically for ATV use and, through improvements to sub-base and surface and installation of fords across streams acceptable to Department of Fish and Game, eliminate surface erosion and related drainage problems.
  - Pursue a watershed study to better understand the impact of recreation and other uses in the planning area on surface water and well water quality.
  - Work closely with Alaska Department of Fish and Game to ensure protection of wildlife and fish habitat, riverbank and shoreline stabilization, and maintenance of anadromous streams and lakes.
  - Work with the Alaska Office of History and Archeology and the Alutiiq Museum to identify and catalog sites with archeological and historic value in order to preserve and protect them.

## **Access and Transportation**

**Goal:** Upgrade and maintain roads and provide for public access to beaches and waterways.

**Objective:** Promote state road upgrade and maintenance on a regular schedule through the Alaska Department of Transportation.

Ensure future public pedestrian access to and along beaches considered for inclusion to the state park system.

Upgrade the "Fossil Beach" section of the state road beyond the Rocket Launch Facility. Repair and maintain the perched culverts under the state road at Bear Paw Ranch (USS 5703) and cattle guards separating grazing units.

Require adequate parking for all development.

Improve existing subdivision roads prior to creating new lots.

## **Land Use**

**General Objective:** Recommend that the State plan for the Pasagshak/Narrow Cape area, when developed by the State Department of Natural Resources, be made consistent with this Pasagshak/Narrow Cape Area Plan.

**Agricultural Goal:** Encourage agriculture and ranching in the area, recognizing not only the historical and economic significance of existing ranching operations and grazing leases as long-term investments with economic importance to the region, but also acknowledging the potential of patented land for agricultural and ranching purposes and those dedicated to ranching and farming in the plan area who do not have State grazing leases.

**Objective:** Acknowledge that all agricultural uses, including commercial grazing, should be permitted outright in the C-Conservation zoning district.

Incorporate into the area plan as attachments in the Appendix the conservation plans (as available) for existing State grazing leases encompassing the plan area, if copies of those conservation plans can be provided by the lessees.

**Residential Goal:** Large-lot, low density single-family residential development, much of which will be generally recreational/seasonal in nature, is encouraged for the area should future development occur.

Objective: Newly created residential lots should be two acre (RR2) minimum to retain a rural-remote character and better ensure adequacy of well and septic systems.

Retail/Commercial Goal: To ensure that the area retains its agricultural, recreational, residential character, business uses that would require rezoning to a commercial zoning district should be discouraged.

Objective: Allow for retail/commercial activity that can be conducted as home occupations.

Pursue a revision to the zoning ordinance that would restrict to four (4) the number of overnight guests allowed to occupy the two rooms permitted in a bed and breakfast in areas such as Pasagshak River Subdivision not supported by public utilities or engineered septic systems.

Acknowledge that multi-guest occupancy housing is permitted as a conditional use in the C-Conservation zoning district.

Industrial Goal: Prohibit additional industrial activity in the plan area not directly related to the rocket launch facility.

Objective: Encourage Alaska Aerospace Development Corporation to submit to further public review prior to undertaking expansion of the Kodiak Rocket Launch Facility.

Limit additional commercial gravel activity to the two existing permitted sites and only with approval of an engineered gravel plan.

Future extraction activity at existing permitted gravel sites must be granted a CUP which will require analysis of cumulative impacts, including visual, of proposed and existing activities.

Recreational Goal: Encourage recreational opportunities in the planning area and identify and designate land for recreation activities, beach access, hiking trails, picnic and camping sites.

Objective: Initiate rezone of the tracts at the mouth of Pasagshak River comprising the exiting State Recreational Site within the State Park System from RR1 to NU-Natural Use.

Investigate expansion of the State Park System to beaches and lakes in the Narrow Cape area, adjacent to Lake Rose Tead, and at Pasagshak Point. Where inclusion into the State Park System is determined by the State to be appropriate, explore rezone to NU-Natural Use.

Designate picnic sites in scenic areas near lakes and beaches.

Improve hiking trails.

Provide areas or decks for observation and photography of birds, wildlife and whales.

Provide clearly marked signs and maps for parks and recreation sites and facilities.

Designate and upgrade specific camping areas.

Pursue rezone to NU-Natural Use of areas of State owned land uniquely suited because of natural amenities, fish and wildlife habitat value, and recreational potential.

### **Utilities and Public Services**

Goal: Identify public service and utility needs and promote delivery of services to meet the needs of area.

Objectives: Develop a solid waste disposal program with consideration for dumpster service for the plan area.

Ensure provision of electrical service to newly developed areas and support provision of telephone service to the plan area, and encourage installation of underground lines.

Consider establishment of road and fire service districts to coordinate with property disposal and/or subdivision activity.

Identify and designate adequate public land for future public uses such as school, fire hall, sewage treatment plant, emergency services center, and solid waste disposal site.

### **Public Safety**

Goal: Ensure public safety for all users of the planning area, including property owners and leaseholders.

Objectives: Identify potential flood, avalanche and landslide zones, including tsunami run-up zones, and provide warning systems and evacuation routes to ensure public safety.

Formalize fire response procedures for potential brush and structural fires.

Provide an emergency phone in or near the State Park at Pasagshak River.

## 7. THE PLAN

The Pasagshak/Narrow Cape Area Plan identifies five general planning categories, principally based on existing uses. They are residential/recreational, park/natural use, transportation/transportation/communication, and ranching/grazing. This offers a point of departure in the discussion of appropriate land use designations.

Ranching/livestock grazing has been established as the predominate historical use in the area, and it has proven to be compatible with other emerging uses. This is a designation that overlays the entire area and appropriately will remain in place in accordance with active grazing leases. One specific recommendation that has been made and endorsed by the Commission would be to reinforce this use in the C-Conservation zoning district by revising that code section to designate commercial grazing as a permitted principal use.

The established State Recreation Site at the mouth of Pasagshak River consisting of approximately twenty-five (25) acres logically should receive park/open space designation and be recommended for rezone to NU-Natural Use. Other popular areas, such as Fossil Beach/Narrow Cape and Pasagshak Point, that have been identified for recreational value and natural amenities, should be explored for inclusion into the State Park System and possible rezone to NU-Natural Use.

The 3,077 acre Alaska Aerospace Development Corporation site at Narrow Cape, housing the Kodiak Launch Complex, has in the past few years emerged as an area with a decidedly transportation/utility industrial focus. Overlapping uses exist with ongoing livestock grazing and active recreational use of some of the area's more popular beaches within the KLC boundary. Access will be restricted at times of scheduled launches.

One of the plan's recommended land use goals, based on forceful public input at worksessions and survey responses, would prohibit additional industrial development in the plan area not related to the KLC, and encourage in strong terms further public review for any future expansion of the facility. Additionally, no commercial land use designation or corresponding zoning is recommended for the area based on the preference expressed by the worksession participants and survey respondents.

The only existing residential area, appropriately designated and zoned, is the recreational/residential subdivision at the mouth of Pasagshak River. Although no specific area has been designated for future residential settlement on State land, a minority interest (20% of survey respondents) has been expressed in future land disposal of large, low-density, rural-remote residential lots if appropriate areas can be identified and conflicts with existing State grazing leases eliminated or minimized. If five acre lot minimum is the norm, the present C-Conservation zoning district would serve. RR2-Rural Residential Two zoning would provide a vehicle for two-acre minimum lot size should that be the preference. Unless it were on a privately owned parcel exceeding ten acres, of which there is only one in the plan area, future residential land disposal and settlement could only be precipitated by a land disposal decision on the part of the State of Alaska as land owner. It is wise to anticipate development and implementation of the proposed State area plan. Accordingly, a general land use objective states

that, when the State Department of Natural Resources develops the State area plan, it be made consistent with the KIB Pasagshak/Narrow Cape Area Plan.

A land use designation of public/institutional would be appropriate to provide needed public facilities for the residents of the area anticipating future growth. If those needs are foreseen, it is better for potential locations to be identified as soon as possible. A land use objective addressing utilities and public services is to identify and designate adequate public land for future public uses such as school, fire hall, sewage treatment plant, solid waste disposal, public works facility and emergency services site. The area designated for future public facilities is north of the Pasagshak River generally between the two active gravel pits operating under CUP's, bordered on the west and north by Lake Rose Tead and on the east by the Pasagshak Road, as indicated on the Land Use Map. A public facilities designation as part of this plan in advance of the State area plan, combined with the in conjunction with the recommendation for consistency, facilitates and encourages future State disposal for that purpose. Application can be made in excess of the Borough entitlement for state land to be dedicated to municipal facilities.

## **8. IMPLEMENTATION**

Any plan is successful only to the extent that it is effectively implemented. A plan is implemented when it is used to guide decision making, employing regulations and procedures including zoning, subdivision, land disposal and capital improvement programs as tools. Reflecting a ten (10) year time frame, the plan should be reviewed and revised periodically as community conditions and desires change.

The appropriateness of C-Conservation zoning for virtually the entire plan area should be evaluated. It preserves open space, as was the original intention in the face of potential impacts of OCS oil development activities in 1977. However, it was acknowledged at the time that it was being applied as an "interim use classification." C-Conservation zoning, with revisions that would make commercial livestock grazing a permitted principal use rather than a conditional use, is suitable for the traditional ranching/grazing uses in the plan area. It is also suitable to very large lot, low-density residential settlement development (5 acre minimum). But it is open to debate whether this blanket zoning district designation advances land use patterns seen as desirable based on the twenty land uses permitted either outright or conditionally by code, since many are intensive and industrial in nature, as has been evidenced.

Zoning regulations are ultimately a major implementing tool to achieve a plan's goals and objectives. As development pressures become stronger, specific areas may warrant consideration for rezone consistent with the plan's ultimate designations and recommendations. Consequences should be anticipated and the implications carefully weighed so that the vision defined can be realized.

## BIBLIOGRAPHY

1. Arctic Environmental Information and Data Center: Kadyak: A Background for Living; University of Alaska; Anchorage; 1975.
2. Brown & Root Environmental (for Alaska Aerospace Development Corporation): Draft Programmatic Environmental Assessment of the Kodiak Launch Complex; December, 1995.
3. Chaffin, Yule: Koniag to King Crab; Desert News Press; 1967.
4. Environmental and Natural Resources Institute, University of Alaska, Anchorage (for Alaska Aerospace Development Corporation): Environmental Baseline of Narrow Cape, Kodiak Island, Alaska, Vol. 1-3; February, 1995.
5. Plafker and Kachadoorian: "Geologic Effects of the March 1964 Earthquake and Associated Seismic Sea Waves on Kodiak and Nearby Islands Alaska" in The Alaska Earthquake, March 27, 1964: Regional Effects; Geological Survey Professional Paper 543-D; United States Government Printing Office; Washington D.C., 1966.
6. U. S. Dept. of Agriculture (Soil Conservation Service) and U.S. Dept. of Interior (Bureau of Land Management) in cooperation with Alaska Agricultural Experiment Station: Soil Survey and Vegetation: Northeastern Kodiak Island Area, Alaska; Soil Survey Series 19567, No. 17; United States Government Printing Office; Washington D.C., 1960.

Table 1 Salmon escapement counts in the Pasagshak River, 1980 to 1993.

Year	Species		
	Sockeye	Coho	Pink
1980	3,484	1,330	
1981	2,759	320	2,000
1982	5,400	175	
1983	3,458	1,920	400
1984	3,700	1,540	3,500
1985	1,700	3,000	11,000
1986	3,200	3,571	
1987	14,000	2,519	2,000
1988	20,000	2,000	2,000
1989	14,300	1,800	2,000
1990	4,680	2,178	
1991	25,000		2,000
1992	3,590	3,000	500
1993	16,000	1,337	300
Mean	8,662	1,899	2,570

Table 2 . Status of bird species known to occur on Narrow Cape and the Kodiak Archipelago.

Hoary Redpoll	Species of the Kodiak Archipelago
Pine Siskin	Species occurrence within 25-mile radius of Narrow Cape
*	Nesting record on Kodiak Archipelago
<b>Abundance</b>	
A	Abundant
C	Common
U	Uncommon
R	Rare
+	Casual or accidental
<b>Occurrence</b>	
NC	Breeding Bird Survey on Narrow Cape
BBS	Breeding Bird Survey
CBC	Christmas Bird Count
I	Incidental on Narrow Cape
x	Recorded occurrence

SPECIES	SCIENTIFIC NAME	ABUNDANCE				OCCURRENCE			
		S	S	F	W	NC	BBS	CBC	I
Red-throated Loon*	<i>Gavia stellata</i>	C	C	U	U		x	x	U
Pacific Loon	<i>Gavia pacifica</i>	U	+	U	U			x	U
Common Loon*	<i>Gavia immer</i>	C	C	C	C			x	U
Yellow-billed loon	<i>Gavia adamsii</i>	R	+	R	U			x	R
Horned Grebe	<i>Podiceps auritus</i>	C	R	C	C			x	C
Red-necked Grebe*	<i>Podiceps grisegena</i>	U	R	U	U			x	C
Short-tailed Albatross	<i>Diomedea albatrus</i>	+	+	+					
Black-footed Albatross	<i>Diomedea nigripes</i>	C	C	C	C				
Laysan Albatross	<i>Diomedea immutabilis</i>	U	U	U					
Northern Fulmar	<i>Fulmarus glacialis</i>	C	C	C	C				R
Mottled Petrel	<i>Pterodroma inexpectata</i>	U	U	U					
Pink-footed Shearwater	<i>Puffinus creatopus</i>	+	+						
Flesh-footed Shearwater	<i>Puffinus carneipes</i>	+	+						
Buller's Shearwater	<i>Puffinus bulleri</i>	+	+	+					
Sooty Shearwater	<i>Puffinus griseus</i>	A	A	A	R				C
Short-tailed Shearwater	<i>Puffinus tenuirostris</i>	A	A	A	R				C
Fork-tailed Storm-Petrel*	<i>Oceanodroma furcata</i>	C	C	C	C				
Leach's Storm-Petrel*	<i>Oceanodroma leucorhoa</i>	U	U	U					
Doubled-crested cormorant*	<i>Phalacrocorax auritus</i>	U	U	U	C			x	U
Pelagic Cormorant	<i>Phalacrocorax pelagicus</i>	C	C	C	C		x	x	C
Red-faced Cormorant*	<i>Phalacrocorax urile</i>	C	C	C	U			x	U
Great Blue Heron	<i>Ardea herodias</i>	R	+	R	R				
Great Egret	<i>Casmerodius albus</i>	+	+						
Tundra Swan	<i>Cygnus columbianus</i>	U	U	U	R				R
Trumpeter Swan	<i>Cygnus buccinator</i>	+	+					x	
Greater White-fronted Goose	<i>Anser albifrons</i>	U	U						R
Snow Goose	<i>Chen caerulescens</i>	+	+						
Emperor Goose	<i>Chen canagica</i>	C	+	U	C			x	R
Brant	<i>Branta bernicla</i>	A	+	+	+				A
Canada Goose	<i>Branta canadensis</i>	U	+	U	+				
Green-winged Teal*	<i>Anas crecca</i>	C	C	C	U		x	x	C
Mallard*	<i>Anas platyrhynchos</i>	C	C	C	C		x	x	C

Table 2. Status of bird species known to occur on Narrow Cape and the Kodiak Archipelago (continued).

SPECIES	SCIENTIFIC NAME	ABUNDANCE				OCCURRENCE			
		S	S	F	W	NC	BBS	CBC	I
Spot-billed Duck	<i>Anas poecilorhyncha</i>			+					
Northern Pintail*	<i>Anas acuta</i>	A	C	C	U		x	x	C
Blue-winged teal	<i>Anas discors</i>	R	+					x	+
Cinnamon Teal	<i>Anas cyanoptera</i>	+	+						+
Northern Shoveler	<i>Anas clypeata</i>	C	R	R	+			x	R
Gadwall*	<i>Anas strepera</i>	U	U	C	C		x	x	R
Eurasian Wigeon	<i>Anas penelope</i>	U		R	R			x	
American Wigeon*	<i>Anas americana</i>	C	C	C	U		x	x	U
Canvasback	<i>Aythya valisineria</i>	+		+	+			x	+
Redhead	<i>Aythya americana</i>	+	+	+	+			x	+
Ring-necked Duck	<i>Aythya collaris</i>	R		R	R			x	+
Tufted Duck	<i>Aythya fuligula</i>	+	+	+	+			x	+
Greater Scaup*	<i>Aythya marila</i>	A	C	A	A	x	x	x	U
Lesser Scaup	<i>Aythya affinis</i>	R	+	R	R			x	R
Common Eider*	<i>Somateria mollissima</i>	U	U	U	U			x	
King Eider	<i>Somateria spectabilis</i>	C	R	U	C			x	A
Spectacled Eider	<i>Somateria fischeri</i>	+			+				
Steller's Eider	<i>Polysticta stelleri</i>	C	+	U	C			x	A
Harlequin Duck*	<i>Histrionicus histrionicus</i>	A	C	A	A	x	x	x	C
Oldsquaw	<i>Clangula hyemalis</i>	A	R	A	A			x	A
Black Scoter*	<i>Melanitta nigra</i>	A	U	A	A		x	x	C
Surf Scoter	<i>Melanitta perspicillata</i>	C	U	C	C			x	U
White-winged Scoter	<i>Melanitta fusca</i>	A	C	A	A		x	x	A
Common Goldeneye*	<i>Bucephala clangula</i>	C	U	C	C			x	C
Barrow's Goldeneye*	<i>Bucephala islandica</i>	C	U	C	C			x	
Bufflehead	<i>Bucephala albeola</i>	C	+	C	C			x	C
Smew	<i>Mergellus albellus</i>	+			+				
Hooded Merganser	<i>Lophodytes cucullatus</i>	+	+	+	+			x	
Common Merganser*	<i>Mergus merganser</i>	C	C	C	C		x	x	U
Red-breasted Merganser*	<i>Mergus serrator</i>	C	C	C	C		x	x	U
Osprey	<i>Pandion haliaetus</i>	+	+	+					+
Bald Eagle*	<i>Haliaeetus leucocephalus</i>	C	C	C	C		x	x	C
Steller's Sea-eagle	<i>Haliaeetus pelagicus</i>		+						
Northern Harrier	<i>Circus cyaneus</i>	U	R	U	+				U
Sharp-shinned Hawk	<i>Accipiter striatus</i>	R	R	R	R			x	R
Northern Goshawk	<i>Accipiter gentilis</i>	C	C	C	C			x	U
Red-tailed Hawk	<i>Buteo jamaicensis</i>	+							
Rough-legged Hawk*	<i>Buteo lagopus</i>	C	C	C	+		x	x	U
Golden Eagle*	<i>Aquila chrysaetos</i>	U	U	U	U			x	U
American Kestrel	<i>Falco sparverius</i>			+	+				+
Merlin*	<i>Falco columbarius</i>	R	R	U	R	x			U
Peregrine Falcon*	<i>Falco peregrinus</i>	U	R	U	U			x	C
Gyr Falcon	<i>Falco rusticolus</i>	R	+	R	R			x	+
Willow Ptarmigan*	<i>Lagopus lagopus</i>	C	C	C	C			x	R
Rock Ptarmigan*	<i>Lagopus mutus</i>	C	C	C	C				
Sandhill Crane	<i>Grus canadensis</i>	+	+						+

Table 2. Status of bird species known to occur on Narrow Cape and the Kodiak Archipelago (continued).

SPECIES	SCIENTIFIC NAME	ABUNDANCE				OCCURRENCE			
		S	S	F	W	NC	BBS	CBC	I
Black-bellied Plover	<i>Pluvialis squatarola</i>	U	U	U					R
Lesser Golden-plover	<i>Pluvialis dominica</i>	C	U	C					U
Semipalmated Plover*	<i>Charadrius semipalmatus</i>	A	A	U		x	x		C
Killdeer	<i>Charadrius vociferus</i>		+						
Black Oystercatcher*	<i>Haematopus bachmani</i>	C	C	C	C	x	x	x	U
Greater Yellowlegs*	<i>Tringa melanoleuca</i>	C	C	C			x		U
Lesser Yellowlegs	<i>Tringa flavipes</i>	R	C	U					R
Solitary Sandpiper	<i>Tringa solitaria</i>		R						+
Wandering Tattler	<i>Heteroscelus incanus</i>	C	C	U			x		R
Spotted Sandpiper*	<i>Actitis macularia</i>	R	U	R					R
Upland Sandpiper	<i>Bartramia longicauda</i>		+						
Whimbrel	<i>Numenius phaeopus</i>	U	R	R					R
Bristle-thighed Curlew	<i>Numenius tahitiensis</i>	+	+	+					+
Hudsonian Godwit	<i>Limosa haemastica</i>		+						
Bar-tailed Godwit	<i>Limosa lapponica</i>	R	+	+					
Marbled Godwit	<i>Limosa fedoa</i>	R							
Ruddy Turnstone	<i>Arenaria interpres</i>	R	R	R					R
Black Turnstone	<i>Arenaria melanocephala</i>	C	C	U	U			x	R
Surfbird*	<i>Aphriza virgata</i>	U	U	U	U			x	
Red Knot	<i>Calidris canutus</i>	+	+	+					
Sanderling	<i>Calidris alba</i>	R	R	R	+				R
Semipalmated Sandpiper	<i>Calidris pusilla</i>	+	R	+					R
Western Sandpiper	<i>Calidris mauri</i>	U	A	U					U
Temminck's Stint	<i>Calidris temminckii</i>		+						
Least Sandpiper*	<i>Calidris minutilla</i>	A	A	R		x	x		C
Baird's Sandpiper	<i>Calidris bairdii</i>		U	R					R
Pectoral Sandpiper	<i>Calidris melanotos</i>	R	U	C					U
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>		+	C	+				R
Rock Sandpiper*	<i>Calidris ptilocnemis</i>	C	U	C	C			x	R
Dunlin	<i>Calidris alpina</i>	U	R	U	U			x	R
Curlew Sandpiper	<i>Calidris ferruginea</i>		+						
Stilt Sandpiper	<i>Calidris himantopus</i>		+	+					
Buff-breasted Sandpiper	<i>Tryngites subruficollis</i>		+	+					+
Ruff	<i>Philomachus pugnax</i>			+					
Short-billed Dowitcher*	<i>Limnodromus griseus</i>	C	C	U					C
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	+	+	R					R
Common Snipe*	<i>Gallinago gallinago</i>	C	C	C	R	x	x	x	C
Red-necked Phalarope*	<i>Phalaropus lobatus</i>	C	C	C			x		C
Red Phalarope	<i>Phalaropus fulicaria</i>	U	U	U					
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	C	C	C					
Parasitic Jaeger*	<i>Stercorarius parasiticus</i>	C	C	C		x	x		U
Long-tailed Jaeger*	<i>Stercorarius longicaudus</i>	U	U	U					R
South Polar Skua	<i>Catharacta maccormicki</i>		+	+					
Franklin's Gull	<i>Larus pipixcan</i>	+							
Common Black-headed Gull	<i>Larus ridibundus</i>		+						
Bonaparte's Gull	<i>Larus ridibundus</i>	U	U	U					R
Mew Gull*	<i>Larus canus</i>	C	C	A	A	x	x	x	C
Ring-billed Gull	<i>Larus delawarensis</i>	+	+	+	+			x	
California Gull	<i>Larus californicus</i>	+	+	+					
Herring Gull	<i>Larus argentatus</i>	U	R	R	R			x	R

Table 2 Status of bird species known to occur on Narrow Cape and the Kodiak Archipelago (continued).

SPECIES	SCIENTIFIC NAME	ABUNDANCE				OCCURRENCE			
		S	S	F	W	NC	BBS	CBC	I
Thayer's Gull	<i>Larus glaucooides</i>	R		R	R			x	
Slaty-backed Gull	<i>Larus schistisagus</i>	+	+	+	+				
Glaucous-winged Gull*	<i>Larus glaucescens</i>	A	A	A	A	x	x	x	C
Glaucous Gull	<i>Larus hyperboreus</i>	U	R	U	U			x	
Black-legged Kittiwake*	<i>Rissa tridactyla</i>	A	A	A	U		x	x	A
Red-legged Kittiwake	<i>Rissa brevirostris</i>	+	+	+	+				
Sabine's Gull	<i>Xema sabini</i>	U	U	U					
Arctic tern*	<i>Sterna paradisaea</i>	C	C	R			x		U
Aleutian Tern*	<i>Sterna aleutica</i>	U	U	+		x	x		R
Common Murre*	<i>Uria aalge</i>	C	C	A	A			x	U
Thick-billed Murre*	<i>Uria lomvia</i>	R	R	R	R			x	
Pigeon Guillemot*	<i>Cephus columba</i>	C	C	C	C	x	x	x	C
Marbled Murrelet*	<i>Brachyramphus marmoratus</i>	C	C	C	C		x	x	U
Kittlitz's Murrelet	<i>Brachyramphus brevirostris</i>	R	U	R	R				R
Ancient Murrelet*	<i>Synthliboramphus antiquus</i>	U	U	R	R				
Cassin's Auklet*	<i>Ptychoramphus aleuticus</i>	U	U	U	+				
Parakeet Auklet*	<i>Cyclorhynchus psittacula</i>	R	R	R	+			x	
Least Auklet	<i>Aethia pusilla</i>	+	+	+	+				
Crested Auklet	<i>Aethia cristatella</i>	+	+	C	A			x	R
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>	R	U	R	R				
Tufted Puffin*	<i>Fratercula cirrhata</i>	A	A	A	R				U
Horned Puffin*	<i>Fratercula corniculata</i>	C	C	C	R				U
Mourning Dove	<i>Zenaidura macroura</i>		+	+					
Snowy Owl	<i>Nyctea scandiaca</i>	+		+	+				+
Northern Hawk Owl*	<i>Surnia ulula</i>	U	U	U	U		x	x	
Great Gray Owl	<i>Strix nebulosa</i>				+				
Short-eared Owl*	<i>Asio flammeus</i>	U	U	U	R	x	x		U
Boreal Owl*	<i>Aegolius funereus</i>	C	C	C	C			x	+
Belted Kingfisher*	<i>Ceryle alcyon</i>	C	C	C	C		x	x	R
Red-breasted Sapsucker	<i>Sphyrapicus ruber</i>	+	+	+	+				
Downy Woodpecker*	<i>Picoides pubescens</i>	U	U	U	U		x	x	U
Hairy Woodpecker	<i>Picoides villosus</i>		+	+	+				
Three-toed Woodpecker*	<i>Picoides tridactylus</i>	U	U	U	U				
Northern Flicker	<i>Colaptes auratus</i>			+					+
Eastern Kingbird	<i>Tyrannus tyrannus</i>		+						
Horned Lark	<i>Eremophila alpestris</i>	+	+	+					+
Tree Swallow*	<i>Tachycineta bicolor</i>	C	C	R		x	x		U
Violet-green Swallow*	<i>Tachycineta thalassina</i>	C	C	R					R
Bank Swallow*	<i>Riparia riparia</i>	U	A	R		x	x		C
Cliff Swallow	<i>Hirundo pyrrhonota</i>	R	+						
Barn Swallow	<i>Hirundo rustica</i>	+	R						+
Black-billed Magpie*	<i>Pica pica</i>	C	C	C	C	x	x	x	C
Northwestern Crow*	<i>Corvus caurinus</i>	C	C	C	C	x	x	x	C
Common Raven*	<i>Corvus corax</i>	C	C	C	C	x	x	x	C
Black-capped Chickadee*	<i>Parus atricapillus</i>	C	C	C	C		x	x	C

Table 1. Status of bird species known to occur on Narrow Cape and the Kodiak Archipelago (continued).

SPECIES	SCIENTIFIC NAME	ABUNDANCE				OCCURRENCE			
		S	S	F	W	NC	BBS	CBC	I
Red-breasted Nuthatch*	<i>Sitta canadensis</i>	U	U	U	U		x	x	U
Brown Creeper*	<i>Certhia americana</i>	U	U	U	U		x	x	R
Winter Wren*	<i>Troglodytes troglodytes</i>	C	C	C	C	x	x	x	U
American Dipper	<i>Cinclus mexicanus</i>	C	C	C	C		x	x	U
Golden-crowned Kinglet*	<i>Regulus satrapa</i>	C	C	C	C		x	x	U
Ruby-Crowned Kinglet*	<i>Regulus calendula</i>	R	+	R	R			x	+
Gray-cheeked Thrush*	<i>Catharus minimus</i>	R	C			x	x		U
Swainson's Thrush	<i>Catharus ustulatus</i>		+			x			
Hermit Thrush*	<i>Catharus guttatus</i>	A	A	C		x	x	x	C
American Robin	<i>Turdus migratorius</i>	R	R	R	R		x	x	+
Varied Thrush*	<i>Ixoreus naevius</i>	C	C	C	U	x	x	x	U
Yellow Wagtail	<i>Motacilla flava</i>		+						
American Pipit*	<i>Anthus rubescens</i>	C	C	C	R			x	U
Bohemian Waxwing	<i>Bombycilla garrulus</i>			R	R			x	
Cedar Waxwing	<i>Bombycilla cedrorum</i>				+				
Northern Shrike*	<i>Lanius excubitor</i>	C	C	C	C	x	x	x	C
European Starling	<i>Sturnus vulgaris</i>	R		R	R			x	R
Orange-crowned Warbler*	<i>Vermivora celata</i>	C	C	R		x	x		C
Yellow Warbler*	<i>Dendroica petechia</i>	R	A	U		x	x		A
Yellow-rumped Warbler	<i>Dendroica coronata</i>	R	U	R					
Townsend's Warbler	<i>Dendroica townsendi</i>		+						
Palm Warbler	<i>Dendroica palmarum</i>			+					
Blackpoll Warbler	<i>Dendroica striata</i>		+						
Wilson's Warbler*	<i>Wilsonia pusilla</i>	U	A	U		x	x		A
American Tree Sparrow	<i>Spizella arborea</i>	U		U	U				U
Savannah Sparrow*	<i>Passerculus sandwichensis</i>	A	A	A	+	x	x		A
Fox Sparrow*	<i>Passerella iliaca</i>	A	A	C	R	x	x	x	A
Song Sparrow*	<i>Melospiza melodia</i>	C	C	C	C	x	x	x	U
Lincoln's Sparrow	<i>Melospiza lincolni</i>	+	+	R	R				
White-throated Sparrow	<i>Zonotrichia albicollis</i>			+					
Golden-crowned Sparrow*	<i>Zonotrichia atricapilla</i>	A	A	C	R	x	x	x	A
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	R	+	R	R			x	+
Harris' Sparrow	<i>Zonotrichia querula</i>	+		+	+				
Dark-eyed Junco	<i>Junco hyemalis</i>	U	+	U	U			x	R
Lapland Longspur*	<i>Calcarius lapponicus</i>	A	A	C	+	x	x		C
Rustic Bunting	<i>Emberiza rustica</i>			+				x	
Snow Bunting*	<i>Plectrophenax nivalis</i>	C	C	C	U			x	U
McKay's Bunting	<i>Plectrophenax hyperboreus</i>				+				
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			+					
Rusty Blackbird	<i>Euphagus carolinus</i>	R		R	R			x	+

Table 2. Status of bird species known to occur on Narrow Cape and the Kodiak Archipelago (continued).

SPECIES	SCIENTIFIC NAME	ABUNDANCE				OCCURRENCE			
		S	S	F	W	NC	BBS	CBC	I
Brambling	<i>Fringilla montifringilla</i>			+	+				
Rosy Finch*	<i>Leucosticte arctoa</i>	U	U	U	U			x	R
Pine Grosbeak*	<i>Pinicola enucleator</i>	C	C	C	C	x	x	x	U
Red Crossbill*	<i>Loxia curvirostra</i>	R	R	R	R		x	x	R
White-winged Crossbill*	<i>Loxia leucoptera</i>	U	U	U	U		x	x	R
Common Redpoll*	<i>Carduelis flammea</i>	C	C	C	C	x	x	x	U
Hoary Redpoll	<i>Carduelis hornemanni</i>	+			+				
Pine Siskin*	<i>Carduelis pinus</i>	C	C	C	C		x	x	U

**KODIAK ISLAND BOROUGH**  
**PASAGSHAK/NARROW CAPE COMPREHENSIVE PLAN SURVEY**

As a result of two public meetings to discuss the development of a comprehensive plan for the Pasagshak/Narrow Cape area, this survey is being sent to interested citizens and property owners. The purpose of the survey is to ask your thoughts about the level of activity and types of development you would like to see in the future in this area. The attached map shows the boundaries of the planning area.

Please take a few minutes to respond to this survey and mail it back to the Kodiak Island Borough Community Development Department in the enclosed envelope. No postage is required. If you have any questions about the survey or planning project, feel free to call Bob Scholze at 486-9362.

**SECTION 1 - USER PROFILE**

1. How often do you visit the Pasagshak/Narrow Cape area?

- |                              |                             |
|------------------------------|-----------------------------|
| a) never                     | d) once every 1 to 5 months |
| b) less than once a year     | e) more than once a month   |
| c) once every 6 to 12 months | f) more than once a week    |

How often do you spend the night when you visit the area?

- |           |            |            |
|-----------|------------|------------|
| a) Never  | c) 25%-50% | e) 75%-99% |
| b) 1%-25% | d) 50%-75% | f) 100%    |

2. When you spend the night, you normally stay in:

- |                |         |
|----------------|---------|
| a) cabin/house | c) tent |
| b) RV/camper   | d) boat |

3. Do you own property in the plan area? Yes / No

4. Which activities do you participate in during your visits to the Pasagshak/Narrow Cape area? Please circle all that apply.

- |                       |                                      |                           |
|-----------------------|--------------------------------------|---------------------------|
| a) walking/hiking     | i) horseback riding                  | q) snow shoeing           |
| b) camping            | j) swimming                          | r) ice skating            |
| c) target shooting    | k) bird watching                     | s) picnicing              |
| d) trapping           | l) photography                       | t) hunting                |
| e) sport fishing      | m) plant gathering/<br>berry picking | u) subsistence<br>fishing |
| f) ATV riding         | n) cross country skiing              | v) mountain biking        |
| g) canoeing/kayaking/ | o) surfing                           | w) whale watching         |
| h) boating            | p) running/jogging                   |                           |

x) Other (please write in your response) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. During what seasons do you visit the Pasagshak/Narrow Cape Area? Circle all responses that apply.

- a) spring                      b) summer                      c) fall                      d) winter

6. Where do you live (neighborhood/city)? \_\_\_\_\_

**SECTION 2 - USER PREFERENCES**

7. Presently, only a small portion of the plan area is private property. If a land disposal mechanism were available, do you believe that more property should be transferred into private ownership for residential and/or recreational cabin use? Yes / No

If yes, the minimum lot size should be:

- a) 5 acres    c) 1 acre  
b) 2 acres    d) other: \_\_\_\_\_

8. Presently all property in the plan area, with the exception of the recreational/residential subdivision at the mouth of the Pasagshak River, is zoned C-Conservation with a 5 acre minimum. Do you believe that zoning changes for some property in the area to the following zoning districts is desirable?

- a) RNC Rural Neighborhood Commercial (allowing retail, services, restaurants, etc.) (40,000 square foot minimum lot size) Yes / No  
b) NU-Natural Use (protecting the environment and waterways; no structural development) (Minimum lot size varies) Yes / No

Comments: \_\_\_\_\_  
\_\_\_\_\_

9. Bed and Breakfasts (renting no more than two rooms) are currently permitted as a home occupation. What do you think is an appropriate limit on number of guests allowed to stay at a bed and breakfast per night?

- a) 1-3 guests    c) 6-10 guests  
b) 4-6 guests    d) more than 10 guests

10. Water quality, both safety of drinking water sources and protection/enhancement of streams, rivers and lakes, was identified as a vital issue during the initial scoping meetings. If recreational, residential, industrial and other uses continue to increase in the plan area, which of the following do you think should be done to protect water quality (choose all that you support)?

- a) Buffers and greenway corridors along the river/lake system.  
b) Restrictions on motorized use along the river/lake system.  
c) Requirement that well/septic systems be engineered

Others: \_\_\_\_\_  
 \_\_\_\_\_

11. To date, conditional use permits have been issued in the plan area for a number of uses (rocket launch complex, gravel extraction, construction camp, RV park). Do you think there should be restrictions on the number and/or kind of new conditional use permits issued for the plan area? Yes / No

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

12. Expansion to the State park system was suggested during the initial scoping meetings. Please circle the number that most closely corresponds to your feelings about whether the following areas should be added to the State park system.

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
<u>Areas for new parks:</u>					
Fossil Beach	1	2	3	4	5
Narrow Cape	1	2	3	4	5
Twin Lakes	1	2	3	4	5
Beaches in front of Bear Paw Ranch	1	2	3	4	5
Lake Rose Tead	1	2	3	4	5
Pasagshak Point (Bull & Lupine Lakes)	1	2	3	4	5

Others: \_\_\_\_\_  
 \_\_\_\_\_

13. Please circle the number that most closely corresponds to your feelings about whether the following facilities/improvements should be made in the area.

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
<u>Facilities:</u>					
informational signs	1	2	3	4	5
improved, expanded parking area(s)	1	2	3	4	5
picnic area(s)	1	2	3	4	5

public use cabins	1	2	3	4	5
established trail(s)	1	2	3	4	5
tent campsite(s)	1	2	3	4	5
R.V. campsite(s)	1	2	3	4	5
fire pit(s)	1	2	3	4	5
garbage receptacle(s)	1	2	3	4	5
bird/game viewing platform(s)	1	2	3	4	5
outhouse(s)	1	2	3	4	5
boat launch	1	2	3	4	5
potable water	1	3	3	4	5

Others: \_\_\_\_\_  
\_\_\_\_\_

14. Please rank the following services, which were identified at the public meetings as needed in the plan area, and list any other services you think are needed.

	Extremely Important	Somewhat Important	Indifferent	Not Very Important	Unnecessary
Tsunami Warning	1	2	3	4	5
Road Maintenance	1	2	3	4	5
Telephone	1	2	3	4	5
Avalanche warning/prep.	1	2	3	4	5
Dumpster service	1	2	3	4	5

Other services needed: \_\_\_\_\_  
\_\_\_\_\_

15. Do you have any additional comments?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Your printed name (optional)

**THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY.**



		# responses	percentage	
	ATV riding	12	22%	
	canoe/kayaking	20	37%	
	boating	18	33%	
	horseback riding	8	15%	
	swimming	8	15%	
	bird watching	40	74%	
	photography	35	65%	
	plants/berries	28	52%	
	cross country skiing	6	11%	
	surfing	0	0%	
	running/jogging	9	17%	
	snow shoeing	2	4%	
	ice skating	5	9%	
	picnicing	36	67%	
	hunting	16	30%	
	subsistence fishing	13	24%	
	mountain biking	11	20%	
	whale watching	40	74%	
	beachcombing	4	7%	
	wildflower walks	3	6%	
	ranching	2	4%	
	kite flying	1	2%	
	mountaineering	1	2%	
seasons of visits		54		
	spring	42	78%	
	summer	51	94%	
	fall	48	89%	
	winter	29	54%	
your main residence		47		
	Kodiak Urban	36	76%	
	Chiniak/Pasagshak	4	9%	
	Bells Flats	4	9%	
	Off Island	3	6%	





## **Pasagshak/Narrow Cape Comprehensive Plan Survey (September, 1998)**

### **Summary of Comments**

#### **#8**

- Residential construction should be concentrated and limited.
- Floodplain, beach, river and lake property should not become privately owned but should remain public lands.
- Property in the plan area should remain zoned C-Conservation.
- Natural Use zoning is important to the preservation of the waterways and fish habitat.
- Along the road certainly there is property that could be zoned for RNC Rural Neighborhood Commercial purposes.
- RNC should be allowed only with larger than 40,000 square feet lots and also should include aesthetic standards.
- There should be no more development in this area. It should be preserved for community recreational use.
- There should be absolutely no commercial retail services allowed.
- The principal focus should be habitat protection.

#### **#11**

- No additional restrictions are needed for CUPs. Just follow rules already on the books.
- Development should be kept to a minimum and CUPs should be limited.
- Over-development would ruin natural beauty of the area.
- This area has a wealth of natural recreation amenities. One of few areas on the road system not privately owned. CUPs should be kept to a minimum.
- There should be no more industrial development and no more gravel pits.
- Concerned that public access is going to be curtailed with development of launch site and other industrial/commercial activities.
- The Borough should work with State and Federal Agencies to place a weir on the Pasagshak River to ensure accurate anadromous fish counts and provide accurate commercial, sport and subsistence harvests.
- Keep the area recreational.
- No more CUPs until the Comprehensive Plan is adopted.
- Favors the Rocket Launch Facility including reasonable expansion, but gravel extraction, construction camps and RV parks should be temporary during construction only.
- The current process of review and approval seems to be working fine. There is no change required.
- Presently CUPs allow basically any development with little protection. Without care, Narrow Cape may be lost to cumulative, unplanned development.
- This area is a unique resource easily damaged by construction activity. Be careful. It is easier to be proactive than have to clean-up later.
- Decisions should be case-by-case based on needs that may arise.
- CUPs should be out of eyesight and away from the river and lake.

- CUPs should be taken up individually and need to stand on merit with public input.
- No more special interests (i.e. military).
- There is a need to protect the area from degradation.
- Gravel extraction along Lake Rose Tead is an incompatible use.
- Gravel extraction has been very poorly planned to minimize visual impacts. Some could be allowed in restricted areas.
- This area should be preserved for recreational use by all.
- No more CUPs. The area should be preserved in a natural state as possible for recreational purposes only.
- To date CUPs have been issued with little concern for the environment. They have been issued for the most intrusive uses. Restrictions on number and kind are necessary to prevent further unwarranted development that can damage salmon habitat.
- People go to the Pasagshak area because of the natural beauty of the area. The less development, the better.
- CUPs should be restricted until this planning process has been completed. Hopefully, the comprehensive plan will then drive the kinds of development which will occur.

#### #12

- Concern that development at Lake Rose Tead might result in degradation of water quality in the system.
- AADC should improve and maintain the road from the launch site to Fossil Beach.
- There is not enough information about effects of Narrow Cape and Pasagshak Point entering the State park system. Would not like to see access to Fossil Beach restricted because of the Rocket Launch Facility.
- There are plenty of parks now. We don't have the money to maintain them properly. Why add to the burden?

#### #15

- Narrow cape is an important, enjoyable area that should be preserved as pristine as possible.
- Should discourage placement of dumpsters. Garbage receptacles are a source of spreading trash via wind. People should be required to take their trash out of the area with them.
- Would like to see development public recreational facilities to prevent takeover by military-industrial-rocketeer complex.
- More services attract more population and users which, in turn, can result in more pollution and garbage. We must remember that services must be maintained once initiated.
- Parcels on the road against the mountain should be considered for rezoning for business use.
- This area is a unique resource that should be protected.
- Preference should be given to property owners and residents of the area.
- Protection of the water quality and salmon runs are critical.
- A grazing leaseholder has been granted permission by the State to place improvements. Activity on his 25-year Pasagshak/Narrow Cape lease area will increase with termination of his Kalsin Bay lease in 2 years.

- Trails and trail signs, especially away from the road when it is dusty, would be nice for walkers. Hope the area can remain pristine.
- Further land disposal jeopardizes the very nature of the area, like “killing the golden goose.” Note suggested extension of the plan area added to the map.
- Preserve the area for community use—subsistence and recreation. No more development.
- Motorized vehicles should be restricted from Lake Rose Tead.
- A very popular recreation destination and getaway for many people in town, this area should be protected from any more development. Development tends to defeat the purpose for going out there. No CUPs should be issued until after this plan is in place.
- The State should be responsible for road improvements and maintenance resulting from the Rocket Launch Complex. The area should be left as natural as possible. If more of the area becomes part of the State Park System, the State of Alaska should pay for all improvements. Improvements should not result in increased tax or costs to residents and users.
- The Pasagshak area is an attractive resource because of its wildness. To make it too comfortable and open it to more uses and people is to destroy what makes it desirable.
- Because of the relative lack of road accessible public lands on Kodiak Island, it is important to manage this plan area mainly for public recreation and to maintain public access to the beaches and other coastal areas.
- Limited development in the Pasagshak area along recreational/natural use/tourism lines is acceptable, but there should be no more industrial development.

## EXHIBIT B

INTERAGENCY LAND MANAGEMENT ASSIGNMENT  
STIPULATIONS

ADL 226285

1. Term of Assignment and Condition of Returned Land. The term of this assignment is 30 years. If, upon expiration of the ILMA, the assignee desires a renewal under the same terms and conditions, and provided the ILMA parcel continues to be used for an orbital launch facility or other aerospace related activities, by the assignee, a written request for renewal must be submitted within 60 days prior to the expiration of this agreement. A renewal may be issued under the same terms and conditions for a period not to exceed 30 years.

Land returned to the Division of Land shall be returned in a condition acceptable to the Director, which may include rehabilitation of the site (to a similar condition as of the date of this assignment) and/or removal of any improvements, equipment, and materials. The assignment may be cancelled for non-use or violation of the terms and conditions of the assignment.

2. Review of Assignment and Cancellation of Assignment. Pursuant to AS 38.04.060 (b), this assignment is subject to review by the Division of Land for possible utilization other than for the purposes assigned when considered in the best interest of the state. The assignee must file by certified mail, return receipt requested, or equivalent, a Notice of Continued Use with the Division of Land not later than December 31 of 1998, and December 31 every fifth year thereafter. Failure to file the notice may be construed as non-use/abandonment and after investigation by the Div. of Land, may result in a formal non-use or abandonment determination. The Alaska Aerospace Development Corporation will be supplied a copy of any such determination and will be allowed a minimum of 30 days to comment on and respond to this determination before final action is taken. Appeal rights under 11 AAC 02.010 are not affected by this stipulation.

In the event the ILMA parcel is inspected by the Division of Land to determine compliance with the terms and conditions of the agreement, the Alaska Aerospace Development Corporation may be charged \$100.00 or the Division's actual expenses, as determined by the director.

3. Project Development Plan. The assignee shall submit a development plan to the Division of Land for approval prior to construction of improvements on the ILMA parcel. Any significant additions or corrections to the development plan must be submitted to (and approved by) the Division of Land prior to construction of the new improvements.

4. Use of Subsurface. This assignment does not authorize the use of the subsurface estate or any materials on the site unless specifically authorized by these stipulations, the use is included in the development plan, or authorized in writing by the Division of Land. The assignee shall have the right to drill such wells as are approved by the Division and are depicted on the project development plan.

5. Material. Pursuant to 11 AAC 71.015, the assignee shall not sell, transfer, or donate material including gravel, sand, rock, or peat to a third party except as necessary to construct and maintain the facility when the material is used within the confines of this assignment. The assignee shall have the right to take all soil borings and to conduct all other tests necessary for the design of an orbital launch facility.

6. Timber. If clearing timber on the site is required, clearing will be conducted only in accordance with the development plan, and any useable timber shall be made available to the public. Assignee must coordinate with the Division of Forestry, DNR prior to

clearing of any timber.

7. Project Construction and Survey. Pursuant to AS 38.95.160, a professional architect, engineer, or surveyor shall supervise the location and design of any improvements on the tract and shall be responsible for preparing a plat for recording in the appropriate recording district if the costs of such improvements are more than \$100,000. Each registered professional shall be responsible for that part of the project to which his or her license pertains. The assignee is responsible for compliance with AS 38.95.160.

8. Indemnity. In connection with the entry on or use of lands assigned to the Alaska Aerospace Development Corporation by the Department of Natural Resources, the Alaska Aerospace Development Corporation shall ensure that its contractors, subcontractors, and their employees shall indemnify, save harmless, and defend the state, its agents and its employees from and against any and all claims or actions for injuries or damages sustained by any person or property arising directly or indirectly from the construction or the contractor's performance of the contract, except when the sole proximate cause of the injury or damage is the state's negligence.

9. Notification of Unauthorized Discharge. The assignee shall immediately notify the Department of Environmental Conservation and the Division of Land of any unauthorized discharge, leak, or spill involving two or more barrels of hydrocarbons, and all fires, explosions, or discharges of toxic substances. The Southcentral Region shall be supplied with all followup reports.

10. Fuel and Hazardous Substances. Secondary containment shall be provided for fuel or hazardous substances.

a. Exception for short-term storage of small volumes. The requirement for secondary containment is waived for those fuels and hazardous substances in containers with a volume of 55 gallons or less which are in place for 7 days or less, provided that the total combined volume in place without containment on a pad or work area does not exceed 660 gallons for fuel, hydraulic fluid, or lubricants or 55 gallons of other hazardous substances.

b. Container Marking. All independent fuel and hazardous substance containers shall be marked with the contents and the assignee's name.

c. Fuel or hazardous substance transfers. Secondary containment or drip pans must be placed under all container or vehicle fuel tank inlet and outlet points, hose connections, and hose ends during fuel or hazardous substance transfers. Appropriate spill response equipment must be on hand during any transfer or handling of fuel or hazardous substances to respond to a spill of up to five gallons.

d. Storing container near waterbodies. Containers with a volume larger than 55 gallons which contain fuel or hazardous substances shall not be placed within 100 feet of a waterbody.

e. Exceptions. The Division of Land may under unique or special circumstances grant exceptions to these stipulations on a case by case basis. Requests for exceptions should be made to the Southcentral Regional Office at (907) 762-2270.

f. Definitions.

"Containers" is defined as any item which is used to hold fuel or hazardous

substances. This includes tanks, drums, fuel tanks on small equipment such as light plants and generators, flow test holding tanks, slop oil tanks, bladders, and bags. Manifolded tanks must be considered as a single independent container. Vehicles are not intended to be included under this definition.

"Hazardous substance" is defined under AS 46.03.825(5) as (a) an element or compound which, when it enters the atmosphere, water, or land, presents an imminent and substantial danger to the public health or welfare, including fish, animals, or vegetation, (b) oil, or (c) a substance defined as a hazardous substance under 42 U.S.C.9601(14).

"Secondary containment" is defined as an impermeable diked area or portable impermeable containment structure capable of containing 110 percent of the volume of the largest independent container. Double-walled tanks do not qualify as secondary containment unless an exception is granted for a particular tank.

11. Alaska Historic Preservation Act. The Alaskan Historic Preservations Act (AS 41.35.000) prohibits the appropriation, excavation, removal or injury or destruction of any historic prehistoric, or archaeological resources of the State. No historic site, archaeological site, or camp, either active or abandoned, shall be disturbed in any manner, nor shall any item be removed therefrom. Should any sites be discovered during the course of field operations, activities which would disturb such resources should be stopped and the Department of Natural Resources, Division of Parks and Outdoor Recreation, Office of History and Archaeology be contacted immediately at (907) 762-2622.

12. National Historic Preservation Act. If a grant or other funding for construction of facilities is received by the assignee from the Air Force or another federal agency, compliance with Section 106 of the National Historic Preservations Act and its implementing regulations, 36 CFR 800, is required prior to authorizing construction.

13. Facility Funding. If funds are not available for the proposed orbital space launch facility or other site-related aerospace activities within 10 years from date of approval of this authorization, the authorization will automatically terminate.

14. Valid Existing Rights. This assignment is subject to all valid existing rights easements, rights of way, and reservations of record. Additional easements may be dedicated or granted by the Division of Land with the written concurrence of the assignee.

15. Public Access. Public access to state lands, tidelands and waterways shall not be blocked or restricted in any way on state land. The assignee may restrict public access through the ILMA parcel to protect public safety and the assignee's improvements.

16. Reservations. This ILMA is subject to the following:

Grazing Lease ADL 221677

\*Public and Charitable Lease Application ADL 67915--\*Upon expiration of the term in ADL 67915 or the earlier termination of ADL 67915 for any reason, the real property subject to ADL 67915 shall become part of this ILMA and AADC shall enjoy the use thereof pursuant to the terms of this ILMA.

17. Amendments. Any request to amend the ILMA by the Alaska Aerospace Development

May 16, 1994  
Special Stipulations  
ILMA 226285  
Page 4

Corporation may result in a fee being charged as determined by the director. The fee may not exceed the lesser of \$3,000.00 or seven percent of the fair market value added as a result of the amendment.

18. Responsibility. Issuance of this ILMA does not relieve the Alaska Aerospace Development Corporation of the responsibility of obtaining any other permits, approvals or licenses as may be required by other duly authorized state, local or federal agencies. This includes the Alaska Department of Transportation and Public Facilities who maintain and manage the Narrow Cape/Pasagshak road.

19. Radio Interference. The Alaska Aerospace Development Corporation will cooperate and work with the US Coast Guard to ensure that all communication and electronic equipment are compatible.

The Alaska Aerospace Development Corporation has read the above terms and conditions and agrees to comply with them.

  
Pat Ladner, Executive Director Alaska Aerospace Development Corporation 16 May 94 Date

UNITED STATES OF AMERICA            )  
State of Alaska                        ) ss.  
  Judicial District            )

THIS IS TO CERTIFY that on the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_  
before me personally appeared \_\_\_\_\_  
known to me to be the person described in and who executed this document and  
acknowledged voluntarily signing the same.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal,  
on the day and year shown above.

\_\_\_\_\_  
Notary Public in and for the State of Alaska  
My commission expires: \_\_\_\_\_

Corporation may result in a fee being charged as determined by the director. The fee may not exceed the lesser of \$3,000.00 or seven percent of the fair market value added as a result of the amendment.

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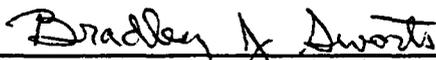
 7 June 94

Pat Ladner, Executive Director Alaska Aerospace Development Corporation Date

UNITED STATES OF AMERICA )  
State of Alaska ) ss.  
Judicial District )

THIS IS TO CERTIFY that on the 8<sup>th</sup> day of June, 1994 before me personally appeared Pat Ladner known to me to be the person described in and who executed this document and acknowledged voluntarily signing the same.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, on the day and year shown above.



6-8-94

Notary Public in and for the State of Alaska

My commission expires: \_\_\_\_\_

My Commission Expires  
January 31, 1995

# STATE OF ALASKA

TONY KNOWLES, GOVERNOR

## DEPARTMENT OF NATURAL RESOURCES

STAR ROUTE BOX 3800  
KODIAK, ALASKA 99615  
PHONE: (907) 486-6339

### DIVISION OF PARKS AND OUTDOOR RECREATION

March 30, 1996

To Pasagshak Area land owners and land managers:

Alaska State Parks has applied to the Alaska Department of Natural Resources, Division of Land for an "Interagency Land Management Transfer" (ILMT) for the approximately 5 acres described below (see also the attached map for a description of the location):

#### T31S, R20W, SM

Section 23: That portion of the NE 1/4 of the NW 1/4 that lies east of the Pasagshak highway and south of the unnamed drainage that runs E-W through the north half of section 23, encompassing approximately 5 acres.

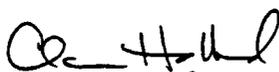
The area is state land, currently managed by the Department of Natural Resources, Division of Land. If Alaska State Parks is successful in receiving management authority for the land, the area will be added to the Pasagshak River State Recreation Site (SRS) and used to develop an overnight camping area.

The main reason for developing a new overnight camping area is to remove overnight camping from the banks of the Pasagshak River. Increased use over the years has resulted in some crowding and associated damage to the river banks. With overnight camping moved to the new site, use along the river would include activities such as fishing, picnicking and hiking.

Funding for the development of the new camping area has already been secured from the Exxon-Valdez oil spill (EVOS) criminal settlement. A rough sketch of the proposed camping area is included with this letter. The "camphost site" shown on the sketch is a very important component of the proposed changes at the Pasagshak River SRS. Volunteer campground hosts will provide regular oversight and maintenance of the facilities during the summer months. In other park areas around the state, the presence of volunteer hosts or caretakers has significantly lessened the amount of vandalism and illegal activities at those sites. The volunteer camphosts will also keep reliable statistics on recreational use and fishing activity at the Pasagshak River SRS.

If you have any questions or comments about the proposals and plans described in this letter, please contact me at (907)486-6339 or by mail at the address on the letterhead above. Thank you for your time and consideration.

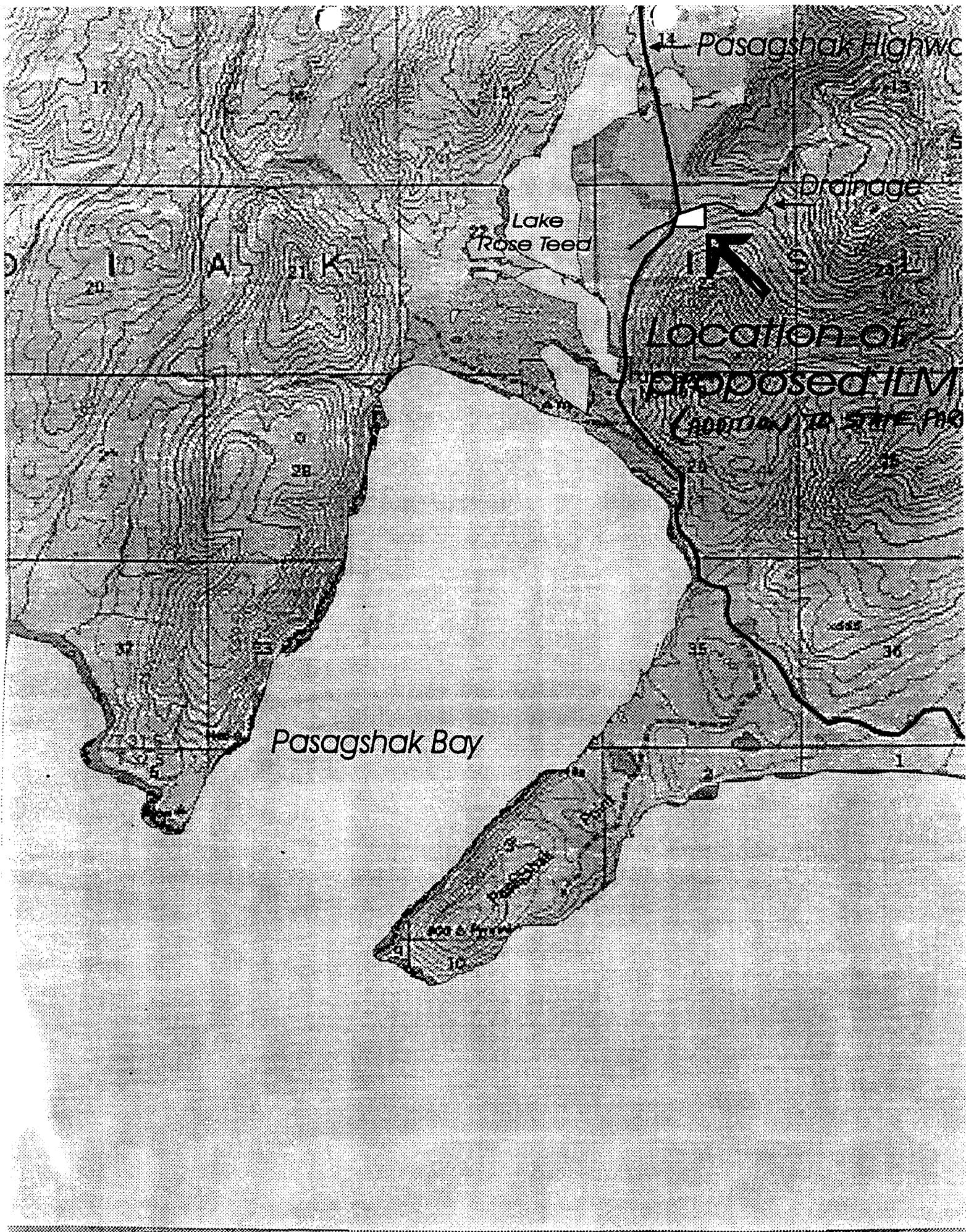
Sincerely,



Claire Holland  
Kodiak District Ranger

1970 - 1995

*Celebrating 25 Years of Alaska State Parks*



← Pasagshak Highway

← Drainage

Lake  
Rose Teed

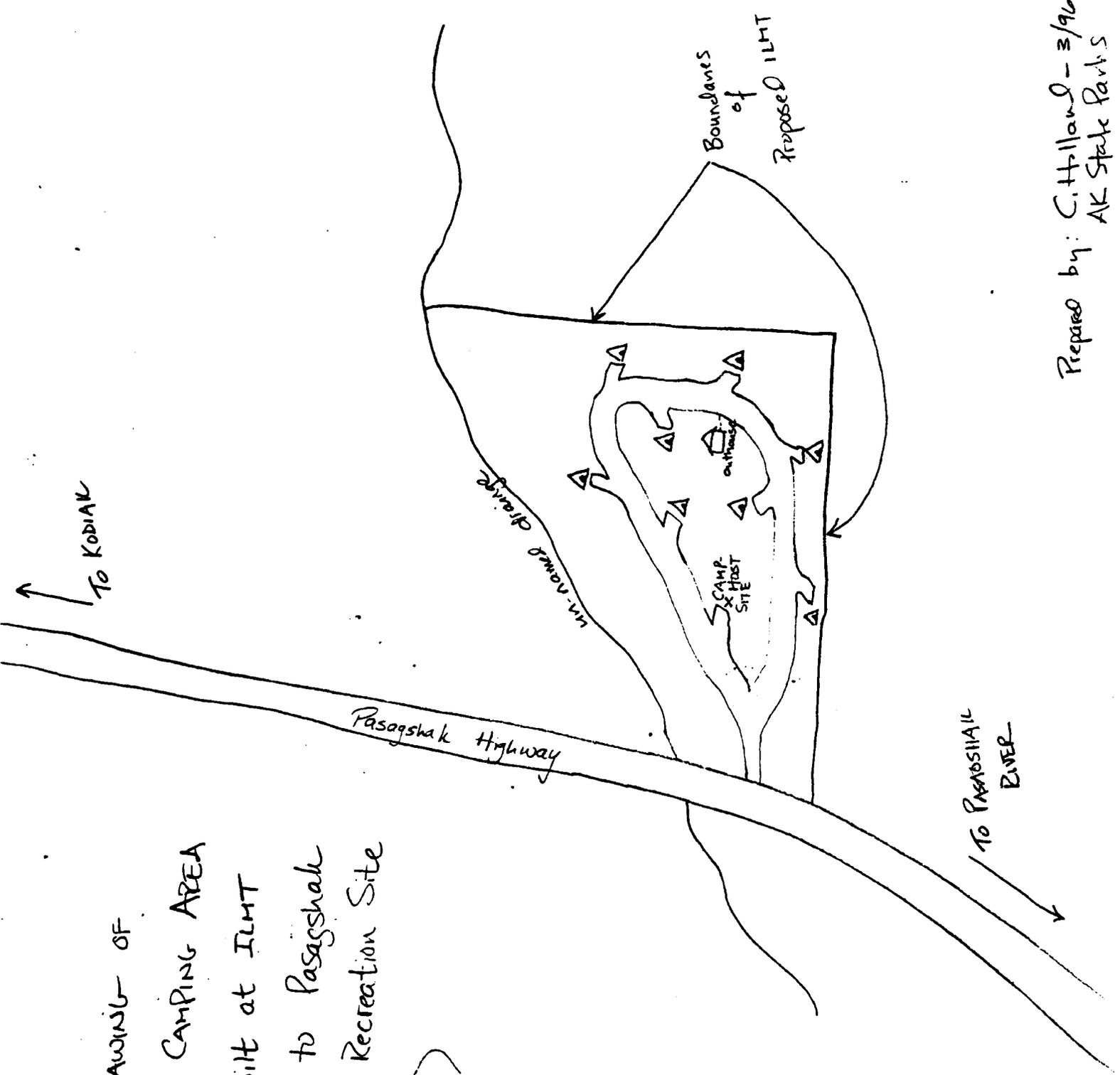
LOCATION OF  
PROPOSED ILM  
(ADDITION TO STATE PARK)

Pasagshak Bay

400 & 450

ROUGH DRAWING OF  
PROPOSED CAMPING AREA  
to be built at ILMT  
addition to Pasagshak  
River State Recreation Site

( $\Delta$  = CAMPSITE)

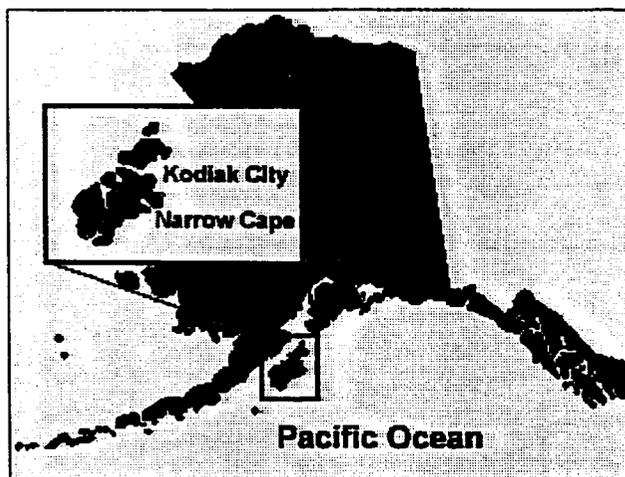


Prepared by: C. H. Holland - 3/96  
AK State Parks

# KODIAK LAUNCH COMPLEX

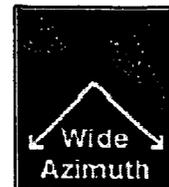
## KODIAK ISLAND, ALASKA

Latest Construction Photos!



In January 1998, the Alaska Aerospace Development Corporation, a public corporation of the State of Alaska, began building a commercial spaceport at Narrow Cape (photo, 31k) on Kodiak Island, about 250-miles south of Anchorage and 25 miles southwest of the City of Kodiak.

Kodiak Island is one of the best locations in the world for polar launch operations, providing a wide launch azimuth (64° posigrade to 64° retrograde) and unobstructed downrange flight path. KLC's superb location combined with innovative low-cost operations will make it ideal for launching telecommunications, remote sensing, and space science payloads of up to 8000 pounds into low earth polar (LEO) and Molniya orbits.



KLC was designed by BRPH Architects - Engineers Inc. of Melbourne, Fla. It represents the state-of-the-art in launch facilities: all-weather, in-door processing that is flexible, economical and adaptable to all current small rocket launch vehicles. Upon completion, the Kodiak Launch Complex will be the only commercial launch range in the United States not co-located with a federal facility.

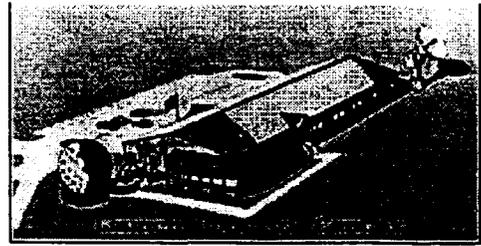
## KLC Facilities

Kodiak Launch Complex is located on a 3,100 acre site at Narrow Cape, about 25-miles south of the City of Kodiak. The actual "footprint" of the facility is approximately 27 acres, divided among four sites: 1) the Launch Control and Management Center, 2) the Payload Processing Facility, 3) the Integration and Processing Facility/Spacecraft Assemblies Transfer Facility, and 4) the Launch Pad and Service Structure. See the Site Map.

### Launch Control and Management Center

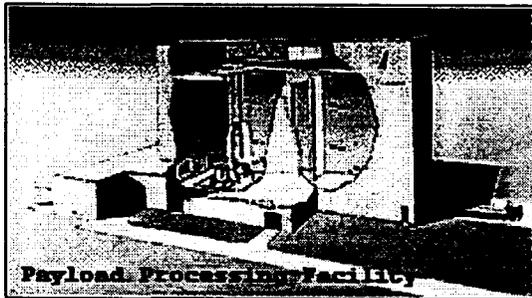
Launch-day operations will be conducted by range,

Launch-day operations will be conducted by range, vehicle and spacecraft personnel from the Launch Control and Management Center (LCC). The Center will also serve as the administrative and engineering support facility for KLC. The LCC will be a pre-engineered metal building approximately 175 feet long, 80 feet wide and 40 feet high. It is designed for a 100-person occupancy because, during launches, almost all site personnel would be located there. Interior features include the Launch Control Center, offices, instrument calibration and repair laboratories, computer areas, conference rooms, rest rooms with showers, a break room and utility rooms.



The launch control function will be provided through fiber-optic data links with the Launch Pad. Visual contact will be maintained by line-of-sight and closed-circuit television. The LCC will be located approximately two statute miles away from the Launch Pad.

### **Payload Processing Facility**



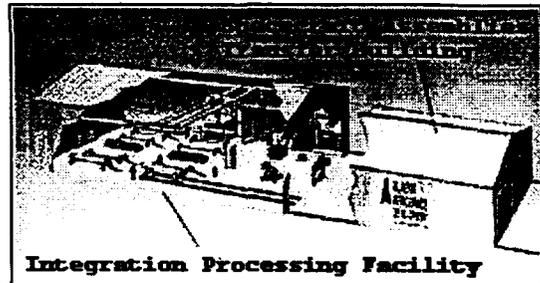
The Payload Processing Facility (PPF) will serve the direct needs of the payload customer. Spacecraft will be received, staged, processed, and checked out in the PPF before being moved to the Launch Pad. Space will also be provided to receive, inspect, clean and stage the payload fairing. Spacecraft encapsulation within the fairing can also be accomplished in the highbay.

An open design is emphasized to allow ease of expansion. The PPF highbay will include a 40 foot by 60 foot airlock and a 40 foot by 60 foot processing bay, each with 2,400 sq. ft. of floor space. A 15-ton bridge crane offering 50 feet of hook height will serve both the airlock and the processing bay.

The heating, ventilation and air conditioning system will use pre-filters and 99.97% efficient HEPA filters to produce a class 100,000 clean work area.

### **Integration and Processing Facility**

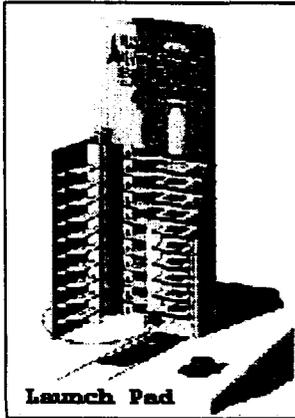
The Integration and Processing Facility (IPF) is a multi-function building providing for receiving and staging of equipment, components and flight hardware; receiving, checkout and integration of launch vehicle stages; processing and testing activities; and equipment storage. The IPF will be an insulated, pre-fabricated building 50 feet by 100 feet, with a 40 foot roll-up door at each end. Depending on the type of launch vehicle involved, fairing-enclosed payloads would be connected to the launch vehicles, and multi-stage launch vehicles interconnected, in a horizontal position on carts. The integrated spacecraft assemblies will then be electronically tested. A 25-ton bridge crane offering 40 feet of hook height will serve the IPF.



### **Spacecraft Assemblies Transfer Facility**

The Spacecraft Assemblies Transfer Facility (SCAT) is a mobile structure used to enclose spacecraft assemblies for transfer to the Launch Pad. The Facility would have walls, roof and doors at both ends of the 50 foot wide, 70 foot long, 60 foot high structure. Spacecraft assemblies would be wheeled on carts out of the Integrated Processing Facility and into the Spacecraft Assemblies Transfer Facility through abutting doorways. After closing doors and securing carts, a tractor would move the Facility 500 feet to the Launch Pad and Service Structure.

## Launch Pad and Service Structure



The Launch Pad and Service Structure is a unique facility that allows the launch vehicle and payload to be readied for launch entirely indoors. The Service Structure would lift the spacecraft assemblies from the horizontal to the vertical position and enclose it until the time of launch, at which time the structure would rotate away. The Launch Pad consists of the pad apron, flame duct and three main sub-structures: the Fixed Service Structure (FSS), the Rotating Service Structure (RSS) and the Rotating Service Door (RSD). The three components of the service structure, when closed, will be 40 feet wide, 70 feet long and 170 feet high.

With the door (RSD) closed, the Service Structure will be environmentally conditioned for worker comfort and to meet solid motor thermal conditioning specifications. Removable lower deck inserts will be provided to accommodate different size launch vehicles. The Service Structure will support a 75 ton bridge crane that will be used to lift and place stages, service modules and payload and/or payload fairing as required to assemble the vehicle stack on the pad. The door-to-door interface with the SCAT building will assure a controlled environment without exposure to the elements during transfer from the IPF to the Service Structure.

## STATE OF ALASKA

## DEPARTMENT OF NATURAL RESOURCES

## DIVISION OF AGRICULTURE

TONY KNOWLES, GOVERNOR

CENTRAL OFFICE  
1800 GLENN HIGHWAY, STE 12  
PALMER, ALASKA 99645  
PHONE: (907) 745-7200  
FAX: (907) 745-7112

PLANT MATERIALS CENTER  
HC02 BOX 7440  
PALMER, ALASKA 99645-9706  
PHONE: (907) 745-4469  
FAX: (907) 746-1568

NORTHERN REGION OFFICE  
3700 AIRPORT WAY  
FAIRBANKS, ALASKA 99709-4699  
PHONE: (907) 451-2780  
FAX: (907) 451-2751

May 1, 1998

Kodiak Game Ranch  
PO Box 1608  
Kodiak, Ak. 99615

Re: Updated Grazing Development Plan

Dear Mr. Burton:

Enclosed is a State Grazing Development form. I have taken the liberty of attaching the necessary information from your Conservation Plan. I also referenced the maps and other data available in the Conservation Plan. Please complete and sign the Development Plan.

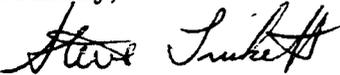
Mark Kenny has indicated to me that he would carry a copy of your Conservation Plan and associated Map and overlays to the May Kodiak District meeting. Hopefully at that meeting you can get the District to sign off on your Development Plan. Once they have signed off on it, please return the plan to me and I will have the Director approve it.

I am very impressed with the information available through NRCS and I am also impressed with your plans for growth and infrastructure development to aid in your overall management.

If all goes according to plan I will be coming down to Kodiak in June along with Mark and Karen from NRCS. I am really looking forward to visiting with all of the Ranchers and getting a first hand look at your operations. To date I have only flown over the ranches while on my way deer hunting.

If you have any questions please don't hesitate to call.

Cordially,

  
Steve Trickett

cc: Mark Kenny, NRCS Homer

Sent  
5-16-98

# KODIAK SOIL & WATER CONSERVATION DISTRICT

BOX 1805  
KODIAK, ALASKA 99615

RECEIVED  
JUL 10 1997

## COOPERATIVE AGREEMENT

DIVISION OF AGRICULTURE

I/We Kodiak State Ranch Box 1608 Kodiak  
Name(s) Mailing Address 99615

Agree to:

1. Develop as rapidly as feasible a resource conservation plan for my/our unit acceptable to me and the District; and to maintain all structures and measures put into effect.
2. Grant technicians assisting the District the right of ingress and egress for the specified purpose of making surveys, planning, installing or inspecting conservation measures or structures.

The District Agrees:

1. To supply a soil survey and/or conservation plan map of my/our operating unit; to provide available technical assistance to help in the development, implementation, and application of my/our conservation plan including any needed revisions; and to supply such equipment and materials as are available and as are requested by me/us for carrying out my/our conservation plan.

It is mutually agreed:

1. That neither the District nor myself/ourselves will be liable for damages to the other in connection with the installation of structures or other conservation measures unless such damages are caused by negligence or misconduct.
2. This agreement is effective of the date of the last signature and may be terminated at my/our request and will be automatically terminated upon my loss of lands involved.

K. M. Buntow  
Cooperator

6-22-97  
Date

By [Signature]  
Supervisor  
Kodiak Soil and Water  
Conservation District

6-24, 97  
Date

CONSERVATION PLAN COVER PAGE

RECEIVED  
MAY 1 1998  
DIVISION OF AGRICULTURE

Client: Burton, Bill E.  
Assisted By: Karin Sonnen

Kodiak Cattle Company

Opid	Tract	ACRES	LAND UNIT NAME	OWNER NAME
	28	24330.0	State Grazing Lease	
	TOTAL	24330.0 ACRES		

BUSINESS OBJECTIVES

04/30/97

The management objectives for the Burton Ranch are to build an economically viable multiple livestock unit while protecting and enhancing the natural resource base and improving the wildlife habitat potentials on the property. Plans are to build the herd from the present level of approximately 300 animals to 600 over the next 10-15 years. Future levels will include approximately 400 buffalo, 100 elk, 50 cattle, and 50 horses. Structural improvements will include livestock cross fences and possibly a new barn on the homestead area of the ranch. Many existing fences on the operation are in need of repair. Newly constructed fences and other improvements are outlined on the detailed conservation plan photo accompanying the comprehensive grazing management plan. Wildlife species will be considered in all grazing activities and enhancement practices will be incorporated where feasible to provide for population and harvest balance.

\* For # 2 (Grazing Development Plan, required data) the maps and photos associated with Kodiak Cattle Company Conservation Plan are incorporated by reference. The Conservation Plan is located in ADL 221677.

CONSERVATION PLAN

Client: Burton, Bill E.  
 Assisted By: Karin Sonnen

Kodiak Cattle Company

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
28	7, 8, 9, 41	420.3Ac					Grazed Forest
28	7	220.1ac	10	1996	220.1ac	10/01/1996	Proper grazing use Grazing of rangelands, native pasture, grazable woodland, ar grazed wildlife lands will be at an intensity which will maintain enough cover to protect the soil and maintain or improve the quality and quantity of desirable vegetation. Key forage species will not be grazed beyond proper use for the species (usually 30% by weight) during the growing season, or 60% during the dormant season. On slopes over 40% it is recomended that allowable use be decreased by 5% for each 10% increase in slope.
	8	69.3ac	10	1996	69.3ac	10/01/1996	
	9	98.9ac	10	1996	98.9ac	10/01/1996	
	41	32.0ac	10	1996	32.0ac	10/01/1996	
28	7	154.1ac	10	1996	154.1ac	10/01/1996	WILDLIFE UPLAND HABITAT MANAGEMENT Existing vegetation will be maintained and managed for uplar wildlife to provide areas for feeding, resting, and nesting. Other measures such as establishment of food plots will be done if desired.
	8	48.5ac	10	1996	48.5ac	10/01/1996	
	9	69.2ac	10	1996	69.2ac	10/01/1996	
	41	26.0ac	10	1996	26.0ac	10/01/1996	
28	7	66.0ac	10	1996	66.0ac	10/01/1996	WILDLIFE WETLAND HABITAT MANAGEMENT Existing vegetation will be maintained and managed for wetland wildlife to provide areas for feeding, resting, and nesting. Other measures such as establishment of food plots will be done if desired.
	8	20.8ac	10	1996	20.8ac	10/01/1996	
	9	29.7ac	10	1996	29.7ac	10/01/1996	
	41	32.0ac	10	1996	32.0ac	10/01/1996	
28	44, 17, 18, 19, 38, 39, 40, 45, 42	614.6Ac					Hayland/Pasture
28	44	2917.0ft	10	1996	2917.0ft	10/01/1996	FENCE A cross fencing system will be installed to help regulate grazing pressure on pasture, cropland, and wildlife land. The fence will be built according to NRCS specifications.
28	17	13.0ac	10	1996	13.0ac	10/01/1996	NUTRIENT MANAGEMENT On hayland, fertilizer rates will be based on soil test results or general recommendations from the Cooperative Extension Service. It is recommended to do split applications of fertilizer to coincide with each harvest period. See Contract# 19970004, item# 5.
	18	40.8ac	10	1996	40.8ac	10/01/1996	
	19	147.6ac	10	1996	147.6ac	10/01/1996	
	38	142.2ac	10	1996	142.2ac	10/01/1996	
	39	175.3ac	10	1996	175.3ac	10/01/1996	
	40	32.4ac	10	1996	32.4ac	10/01/1996	
	44	28.6ac	06	1998			
	45	34.7ac	10	1996	34.7ac	10/01/1996	

CONSERVATION PLAN

Client: Burton, Bill E.  
 Assisted By: Karin Sonnen

Kodiak Cattle Company

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
28	17	13.0ac	10	1996	13.0ac	05/01/1997	PASTURE AND HAY PLANTING Adapted species and varieties will be planted as permanent vegetative cover to control wind and water erosion, and to provide annual forage for livestock. Recommended species will conform to the recommendations found in "A Revegetation Guide for Conservation Use In Alaska". NRCS will provide technical assistance for seedbed preparation, seed varieties, and fertilizer application rates. See Contract# 19970004, item# 4.
	18	40.8ac	10	1996	40.8ac	05/01/1997	
	19	147.6ac	10	1996	147.6ac	05/01/1997	
	38	142.2ac	10	1996			
	39	175.3ac	10	1996			
	40	32.4ac	10	1996	32.4ac	05/01/1997	
	44	15.0ac	06	1998			
	45	34.7ac	10	1996	34.7ac	10/01/1996	
28	17	13.0ac	10	1996	13.0ac	10/01/1996	Pasture and hayland management Mow hayland at proper cutting height and time for the hay species. Maintain hayland in good cover with seed mixture which suits limitations of the soil. Lime and fertilize according to soil test. Grazing will be at an intensity which will maintain enough cover to protect the soil and maintain the quality and quantity of the vegetation. Key forage species will not be grazed beyond proper use during the dormant season (60%). See Contract# 19970004, item# 3.
	18	40.8ac	10	1996	40.8ac	10/01/1996	
	19	147.6ac	10	1996	147.6ac	10/01/1996	
	38	142.2ac	10	1996			
	39	175.3ac	10	1996			
	40	32.4ac	10	1996	32.4ac	10/01/1996	
	42	0.0ac	10	1996			
	45	34.7ac	10	1996	34.7ac	10/01/1996	
28	17	1.3ac	10	1996	1.3ac	10/01/1996	WILDLIFE UPLAND HABITAT MANAGEMENT Existing vegetation will be maintained and managed for upland wildlife to provide areas for feeding, resting, and nesting. Other measures such as establishment of food plots will be done if desired.
	18	4.0ac	10	1996	4.0ac	10/01/1996	
	19	29.5ac	10	1996	29.5ac	10/01/1996	
	38	142.2ac	10	1996	142.2ac	10/01/1996	
	39	175.3ac	10	1996	175.3ac	10/01/1996	
	40	8.1ac	10	1996	8.1ac	10/01/1996	
	42	0.0ac	10	1996			
	45	6.9ac	10	1996	6.9ac	10/01/1996	
28	17	11.7ac	10	1996	11.7ac	10/01/1996	WILDLIFE WETLAND HABITAT MANAGEMENT Existing vegetation will be maintained and managed for wetland wildlife to provide areas for feeding, resting, and nesting. Other measures such as establishment of food plot will be done if desired.
	18	36.8ac	10	1996	36.8ac	10/01/1996	
	19	118.1ac	10	1996	118.1ac	10/01/1996	
	38	142.2ac	10	1996	142.2ac	10/01/1996	
	39	175.3ac	10	1996	175.3ac	10/01/1996	
	40	24.3ac	10	1996	24.3ac	10/01/1996	
	42	0.0ac	10	1996			
	45	27.8ac	10	1996	27.8ac	10/01/1996	
28	24, 26, 33, 34, 36, 37	3125.9Ac					Native Pasture
28	24	221.6ac	06	1998	221.6ac	06/01/1997	Deferred grazing

CONSERVATION PLAN

Client: Burton, Bill E.  
 Assisted By: Karin Sonnen

Kodiak Cattle Company

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
	26	232.4ac	06	1998	232.4ac	06/01/1997	Postpone grazing or rest grazing land for a prescribed period. The purpose is to maintain or improve range condition by maintaining the vigor and health of the plant community; maintain a feed reserve for periods of low forage production or emergency use; to maintain ground cover to reduce soil loss and maintain water quality. See Contract# 19970004, item# 1.
	33	559.8ac	06	1998			
	34	886.8ac	06	1998	886.8ac	06/01/1997	
	36	791.2ac	06	1998			
	37	434.1ac	06	1998	434.1ac	06/01/1997	
28	26	3318.0ft	06	1990	3318.0ft	06/01/1990	FENCE
	26	3400.0ft	06	1998			A cross fencing system will be installed to help regulate grazing pressure on pasture, cropland, and wildlife land. The fence will be built according to NRCS specifications. See Contract# 19970004, item# 6.
	33	9400.0ft	06	1999			
	36	5600.0ft	06	1999			
28	24	221.6ac	06	1998	221.6ac	06/01/1997	Proper grazing use
	26	232.4ac	06	1997	232.4ac	06/01/1997	Grazing of rangelands, native pasture, grazable woodland, and grazed wildlife lands will be at an intensity which will maintain enough cover to protect the soil and maintain or improve the quality and quantity of desirable vegetation. Key forage species will not be grazed beyond proper use for the species (usually 30% by weight) during the growing season, or 60% during the dormant season. On slopes over 40% it is recommended that allowable use be decreased by 5% for each 10% increase in slope. See Contract# 19970004, item# 2.
	33	559.8ac	06	1998			
	34	886.8ac	06	1997			
	36	791.2ac	06	1998			
	37	434.1ac	06	1997	434.1ac	06/01/1997	
28	24	155.1ac	06	1997	155.1ac	06/01/1997	WILDLIFE UPLAND HABITAT MANAGEMENT
	26	151.1ac	06	1997	151.1ac	06/01/1997	Existing vegetation will be maintained and managed for upland wildlife to provide areas for feeding, resting, and nesting. Other measures such as establishment of food plots will be done if desired.
	33	363.9ac	06	1997	363.9ac	06/01/1997	
	34	532.1ac	06	1997	532.1ac	06/01/1997	
	36	553.8ac	06	1997	553.8ac	06/01/1997	
	37	217.1ac	06	1997	217.1ac	06/01/1997	
28	24	66.5ac	06	1997	66.5ac	06/01/1997	WILDLIFE WETLAND HABITAT MANAGEMENT
	26	81.3ac	06	1997	81.3ac	06/01/1997	Existing vegetation will be maintained and managed for wetland wildlife to provide areas for feeding, resting, and nesting. Other measures such as establishment of food plots will be done if desired.
	33	195.9ac	06	1997	195.9ac	06/01/1997	
	34	354.7ac	06	1997	354.7ac	06/01/1997	
	36	237.4ac	06	1997	237.4ac	06/01/1997	
	37	217.0ac	06	1997	217.0ac	06/01/1997	
28	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 15, 16, 20, 21, 22, 23,	20029.8Ac					Rangeland

CONSERVATION PLAN

Client: Burton, Bill E.

Kodiak Cattle Company

Assisted By: Karin Sonnen

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
	25, 27, 28, 29, 30, 31, 32, 35, 43, 46, 47						
28	1	2562.6ac	10	1996	2562.6ac	10/01/1996	Deferred grazing
	2	4443.6ac	10	1996	4443.6ac	10/01/1996	Postpone grazing or rest grazing land for a prescribed period. The purpose is to maintain or improve range condition by maintaining the vigor and health of the plant community; maintain a feed reserve for periods of low forage production or emergency use; to maintain ground cover to reduce soil loss and maintain water quality.
	3	1248.7ac	10	1996	1248.7ac	10/01/1996	
	4	118.5ac	10	1996	118.5ac	10/01/1996	
	5	1603.3ac	10	1996	1603.3ac	10/01/1996	
	6	664.5ac	10	1996	664.5ac	10/01/1996	
	11	1147.8ac	10	1996	1147.8ac	10/01/1996	
	12	668.6ac	10	1996	668.6ac	10/01/1996	
	13	453.7ac	10	1996	453.7ac	10/01/1996	
	14	776.4ac	10	1996	776.4ac	10/01/1996	
	15	1236.4ac	10	1996	1236.4ac	10/01/1996	
	16	146.8ac	10	1996	146.8ac	10/01/1996	
	20	627.2ac	10	1996	627.2ac	10/01/1996	
	21	522.4ac	10	1996	522.4ac	10/01/1996	
	22	520.7ac	10	1996	520.7ac	10/01/1996	
	23	15.0ac	10	1996	15.0ac	10/01/1996	
	25	439.1ac	10	1996	439.1ac	10/01/1996	
	27	20.9ac	10	1996	20.9ac	10/01/1996	
	28	45.1ac	10	1996	45.1ac	10/01/1996	
	29	50.2ac	10	1996	50.2ac	10/01/1996	
	30	174.4ac	10	1996	174.4ac	10/01/1996	
	31	689.9ac	10	1996	689.9ac	10/01/1996	
	32	996.4ac	10	1996	996.4ac	10/01/1996	
	35	716.7ac	10	1996	716.7ac	10/01/1996	
	43	35.2ac	10	1996	35.2ac	10/01/1996	
	46	47.6ac	10	1996	47.6ac	10/01/1996	
	47	58.1ac	10	1996	58.1ac	10/01/1996	
28	23	2288.0ft	06	1997			FENCE
	27	1883.0ft	06	1996	1883.0ft	06/01/1996	A cross fencing system will be installed to help regulate grazing pressure on pasture, cropland, and wildlife land. The fence will be built according to NRCS specifications.
	28	3751.0ft	06	1993	3751.0ft	06/01/1993	
	29	3208.0ft	06	1991	3208.0ft	06/01/1991	
	29	3752.0ft	06	1992	3752.0ft	06/01/1992	
	43	706.0ft	06	1998	706.0ft	10/01/1996	
	43	1325.0ft	09	1998			
	47	1935.0ft	06	1996			
28	1	2562.6ac	10	1996	2562.6ac	10/01/1996	Proper grazing use
	2	4443.6ac	10	1996	4443.6ac	10/01/1996	Grazing of rangelands, native pasture, grazable woodland, and grazed wildlife lands will be at an intensity which will maintain enough cover to protect the soil and maintain or
	3	1248.7ac	10	1996	1248.7ac	10/01/1996	
	4	118.5ac	10	1996	118.5ac	10/01/1996	

CONSERVATION PLAN

Client: Burton, Bill E.  
 Assisted By: Karin Sonnen

Kodiak Cattle Company

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
	5	1603.3ac	10	1996	1603.3ac	10/01/1996	improve the quality and quantity of desirable vegetation. Key forage species will not be grazed beyond proper use for the species (usually 30% by weight) during the growing season, or 60% during the dormant season. On slopes over 40% it is recommended that allowable use be decreased by 5% for each 10% increase in slope.
	6	664.5ac	10	1996	664.5ac	10/01/1996	
	11	1147.8ac	10	1996	1147.8ac	10/01/1996	
	12	668.6ac	10	1996	668.6ac	10/01/1996	
	13	453.7ac	10	1996	453.7ac	10/01/1996	
	14	776.4ac	10	1996	776.4ac	10/01/1996	
	15	1236.4ac	10	1996	1236.4ac	10/01/1996	
	16	146.8ac	10	1996	146.8ac	10/01/1996	
	20	627.2ac	10	1996	627.2ac	10/01/1996	
	21	522.4ac	10	1996	522.4ac	10/01/1996	
	22	520.7ac	10	1996	520.7ac	10/01/1996	
	23	15.0ac	10	1996	15.0ac	10/01/1996	
	25	439.1ac	10	1996	439.1ac	10/01/1996	
	27	20.9ac	10	1996	20.9ac	10/01/1996	
	28	45.1ac	10	1996	45.1ac	10/01/1996	
	29	50.2ac	10	1996	50.2ac	10/01/1996	
	30	174.4ac	10	1996	174.4ac	10/01/1996	
	31	689.9ac	10	1996	689.9ac	10/01/1996	
	32	996.4ac	10	1996	996.4ac	10/01/1996	
	35	716.7ac	10	1996	716.7ac	10/01/1996	
	43	35.2ac	10	1996	35.2ac	10/01/1996	
	46	47.6ac	10	1996	47.6ac	10/01/1996	
	47	58.1ac	10	1996	58.1ac	10/01/1996	
28	1	1922.0ac	10	1996	1922.0ac	10/01/1996	WILDLIFE UPLAND HABITAT MANAGEMENT Existing vegetation will be maintained and managed for upland wildlife to provide areas for feeding, resting, and nesting. Other measures such as establishment of food plots will be done if desired.
	2	3332.7ac	10	1996	3332.7ac	10/01/1996	
	3	749.2ac	10	1996	749.2ac	10/01/1996	
	4	82.9ac	10	1996	82.9ac	10/01/1996	
	5	881.8ac	10	1996	881.8ac	10/01/1996	
	6	398.7ac	10	1996	398.7ac	10/01/1996	
	11	860.9ac	10	1996	860.9ac	10/01/1996	
	12	501.4ac	10	1996	501.4ac	10/01/1996	
	13	272.2ac	10	1996	272.2ac	10/01/1996	
	14	582.3ac	10	1996	582.3ac	10/01/1996	
	15	680.0ac	10	1996	680.0ac	10/01/1996	
	16	88.1ac	10	1996	88.1ac	10/01/1996	
	20	470.4ac	10	1996	470.4ac	10/01/1996	
	21	365.7ac	10	1996	365.7ac	10/01/1996	
	22	364.5ac	10	1996	364.5ac	10/01/1996	
	23	12.0ac	10	1996	12.0ac	10/01/1996	
	25	131.7ac	10	1996	131.7ac	10/01/1996	
	27	14.6ac	10	1996	14.6ac	10/01/1996	
	28	29.3ac	10	1996	29.3ac	10/01/1996	
	29	32.6ac	10	1996	32.6ac	10/01/1996	
	30	130.8ac	10	1996	130.8ac	10/01/1996	
	31	413.9ac	10	1996	413.9ac	10/01/1996	

CONSERVATION PLAN

Client: Burton, Bill E.  
 Assisted By: Karin Sonnen

Kodiak Cattle Company

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
	32	597.8ac	10	1996	597.8ac	10/01/1996	
	35	501.7ac	10	1996	501.7ac	10/01/1996	
	43	26.4ac	10	1996	26.4ac	10/01/1996	
	46	38.1ac	10	1996	38.1ac	10/01/1996	
	47	46.5ac	10	1996	46.5ac	10/01/1996	
28	1	640.6ac	10	1996	640.6ac	10/01/1996	WILDLIFE WETLAND HABITAT MANAGEMENT
	2	1110.9ac	10	1996	1110.9ac	10/01/1996	Existing vegetation will be maintained and managed for
	3	499.5ac	10	1996	499.5ac	10/01/1996	wetland wildlife to provide areas for feeding, resting, and
	4	35.6ac	10	1996	35.6ac	10/01/1996	nesting. Other measures such as establishment of food plots
	5	721.5ac	10	1996	721.5ac	10/01/1996	will be done if desired.
	6	265.8ac	10	1996	265.8ac	10/01/1996	
	11	286.9ac	10	1996	286.9ac	10/01/1996	
	12	167.2ac	10	1996	167.2ac	10/01/1996	
	13	181.5ac	10	1996	181.5ac	10/01/1996	
	14	194.1ac	10	1996	194.1ac	10/01/1996	
	15	556.4ac	10	1996	556.4ac	10/01/1996	
	16	58.7ac	10	1996	58.7ac	10/01/1996	
	20	156.8ac	10	1996	156.8ac	10/01/1996	
	21	156.7ac	10	1996	156.7ac	10/01/1996	
	22	156.2ac	10	1996	156.2ac	10/01/1996	
	23	3.0ac	10	1996	3.0ac	10/01/1996	
	25	307.4ac	10	1996	307.4ac	10/01/1996	
	27	6.3ac	10	1996	6.3ac	10/01/1996	
	28	15.8ac	10	1996	15.8ac	10/01/1996	
	29	17.6ac	10	1996	17.6ac	10/01/1996	
	30	43.6ac	10	1996	43.6ac	10/01/1996	
	31	276.0ac	10	1996	276.0ac	10/01/1996	
	32	398.6ac	10	1996	398.6ac	10/01/1996	
	35	215.0ac	10	1996	215.0ac	10/01/1996	
	43	8.8ac	10	1996	8.8ac	10/01/1996	
	46	9.5ac	10	1996	9.5ac	10/01/1996	
	47	11.6ac	10	1996	11.6ac	10/01/1996	
							Wildlife/Wetland
28	10	139.4Ac					
28	10	13.9ac	10	1996	13.9ac	10/01/1996	WILDLIFE UPLAND HABITAT MANAGEMENT
							Existing vegetation will be maintained and managed for upland
							wildlife to provide areas for feeding, resting, and nesting.
							Other measures such as establishment of food plots will be
							done if desired.
28	10	125.5ac	10	1996	125.5ac	10/01/1996	WILDLIFE WETLAND HABITAT MANAGEMENT
							Existing vegetation will be maintained and managed for
							wetland wildlife to provide areas for feeding, resting, and

ANNUAL GRAZING PLAN

ACRES (1777)

Cooperator

Bill Kirtland

Technician

Mark Kinney - D.C. Helmer

Type of enterprise (Cow-calf, dairy, stocker, etc.)

Cow-Calf

Date

5-97

Animal units on hand now 326  
Planned animal units this year

Est. No. of game animals 350 + (Esthwaite)

Field or Pasture No.(s) Kind of Forage	Acres	(By months, show planned no. of animals in each grazing unit)													
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.		
Winter Management - Units - Buffalo	7,271					206	206	206	206	206	206	206	206		
- Cows						60	60	60	60	60	60	60	60		
- Horses						60	60	60	60	60	60	60	60		
Summer Management - Units	17,058														
- Buffalo		206	206	206	206								206	206	
- Cows		60	60	60	60								60	60	
- Horses		60	60	60	60								60	60	
Total	xxx	326	326	326	326	326	326	326	326	326	326	326	326	326	326
Feed: Hay															
Protein Suppl.															

Notes:

It is recommended that protein and mineral supplement be provided at key locations within winter and summer grazing areas. Some hay production and storage is possible during favorable crop years and this can be used to offset winter range grazing pressure or increase initial stocking rate recommendations. Supplemental forage may not be calculated into annual grazing schedule at this point.



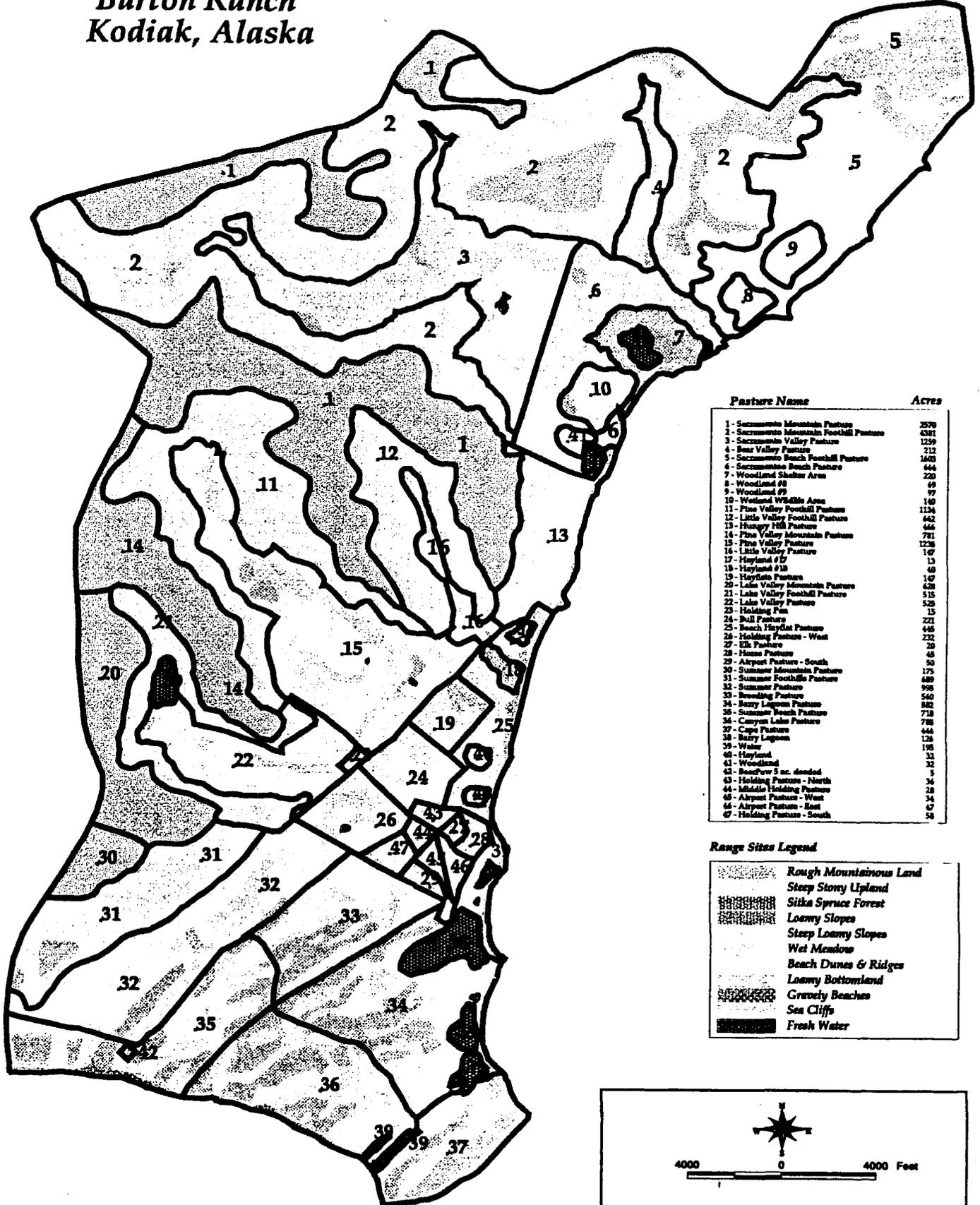
CONSERVATION PLAN

Client: Burton, Bill E.  
 Assisted By: Karin Sonnen

Kodiak Cattle Company

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
							nesting. Other measures such as establishment of food plot will be done if desired.

# Burton Ranch Kodiak, Alaska

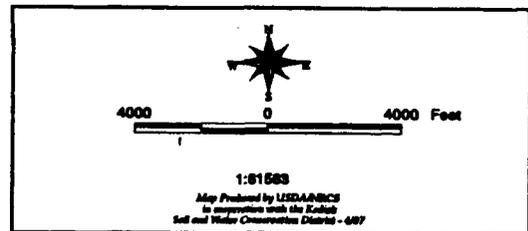


**Pasture Name** **Acres**

1 - Sacramento Mountain Pasture	2570
2 - Sacramento Mountain Foothill Pasture	4381
3 - Sacramento Valley Pasture	1239
4 - Bear Valley Pasture	212
5 - Sacramento Beach Foothill Pasture	1468
6 - Sacramento Beach Pasture	644
7 - Woodland Shelter Area	220
8 - Woodland #8	69
9 - Woodland #9	97
10 - Wetland Wildlife Area	140
11 - Pine Valley Foothill Pasture	1134
12 - Little Valley Foothill Pasture	642
13 - Hungry Hill Pasture	466
14 - Pine Valley Mountain Pasture	781
15 - Pine Valley Pasture	1238
16 - Little Valley Pasture	107
17 - Hayland #17	13
18 - Hayland #18	40
19 - Hayland Pasture	107
20 - Lake Valley Mountain Pasture	628
21 - Lake Valley Foothill Pasture	515
22 - Lake Valley Pasture	528
23 - Holding Pen	15
24 - Bull Pasture	221
25 - Beach Hayland Pasture	446
26 - Holding Pasture - West	232
27 - Elk Pasture	20
28 - Horse Pasture	46
29 - Airport Pasture - South	50
30 - Summer Mountain Pasture	1175
31 - Summer Foothills Pasture	489
32 - Summer Pasture	996
33 - Breeding Pasture	560
34 - Bazy Lagoon Pasture	882
35 - Summer Beach Pasture	718
36 - Canyon Lake Pasture	788
37 - Cape Pasture	444
38 - Bazy Lagoon	128
39 - Water	198
40 - Hayland	32
41 - Woodland	32
42 - Beachfire 2 ac. divided	5
43 - Holding Pasture - North	34
44 - Middle Holding Pasture	28
45 - Airport Pasture - West	34
46 - Airport Pasture - East	47
47 - Holding Pasture - South	54

**Range Sites Legend**

	Rough Mountainous Land
	Steep Stony Upland
	Sitka Spruce Forest
	Loamy Slopes
	Steep Loamy Slopes
	Wet Meadows
	Beach Dunes & Ridges
	Loamy Bottomland
	Grovelly Beaches
	Sea Cliffs
	Fresh Water



# Burton Ranch Soils



- ChB Chiniak silt loam, gently sloping
- ChC Chiniak silt loam, moderately sloping
- Ka Kaisin silt loam
- Kb Kizhuyak loamy fine sand, high water table
- Kc Kizhuyak loamy fine sand, low water table
- KdB Kodiak silt loam, gently sloping
- KdC Kodiak silt loam, Moderately sloping
- KdCC Kodiak silt loam, rolling
- KdD Kodiak silt loam, hilly
- KdE Kodiak silt loam, steep
- KfD Kodiak silt loam, forested, hilly
- KfE Kodiak silt loam, forested, steep
- KgF Kodiak and Pyramid silt loams, very steep
- Os Olds silt loam
- PaA Pasagshak silt loam, nearly level
- PaB Pasagshak silt loam, gently sloping
- PmD Pyramid loamy fine sand, hilly
- PmE Pyramid loamy fine sand, steep
- PmF Pyramid loamy fine sand, very steep
- SaA Salonie silt loam, nearly level
- SaB Salonie silt loam, gently sloping
- Sb Saltery peat
- SdA Saltery-Ugak complex, nearly level
- SdB Saltery-Ugak complex, gently sloping
- SdC Saltery-Ugak complex, moderately sloping
- ShA Sharatin silt loam, nearly level
- Rm Rough mountainous land
- Se Sea cliffs
- Gb Gravel beaches



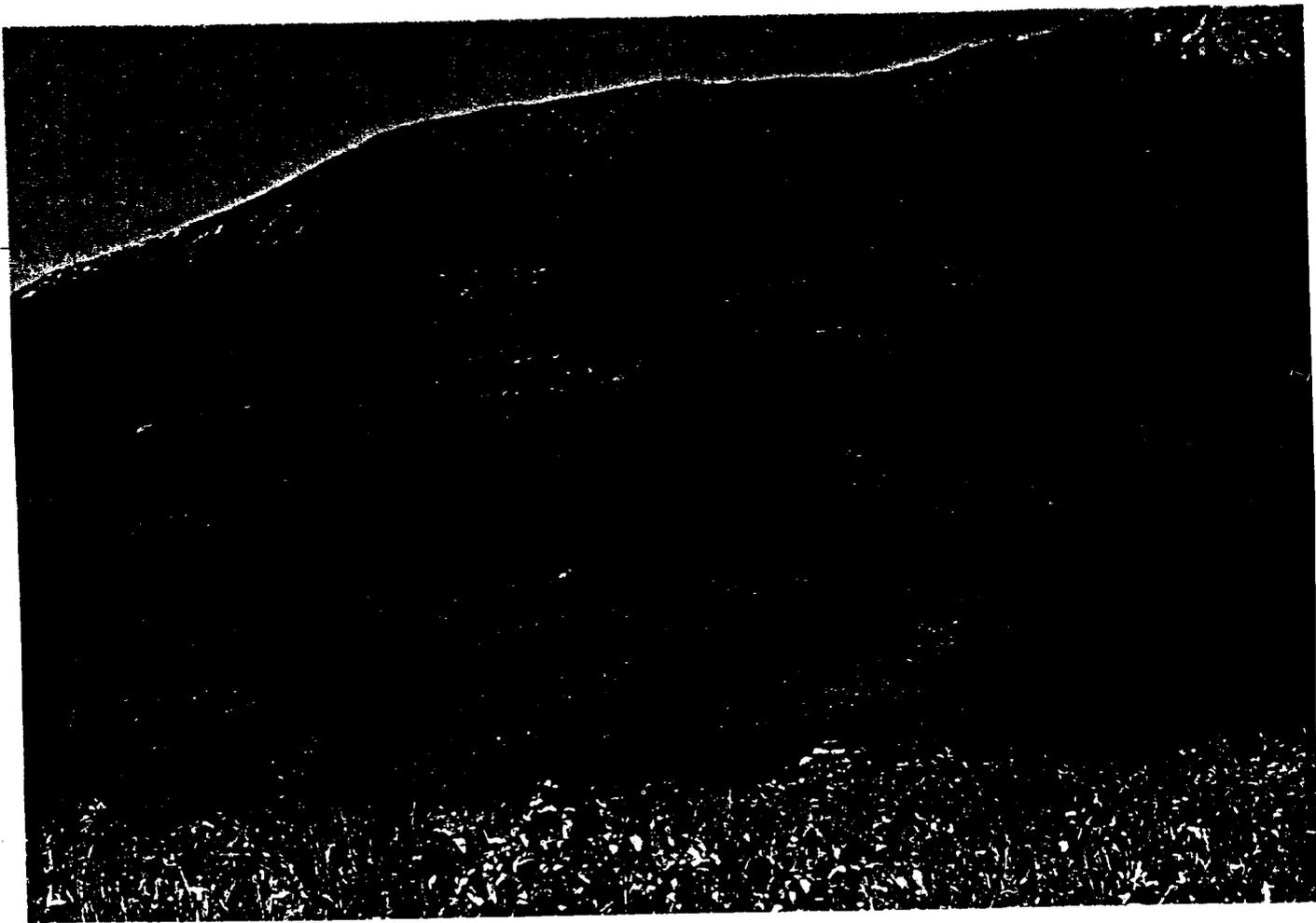
ECOLOGICAL SITE NO. 171XA027AK  
NAME: SEA CLIFFS

**FEATURES:** This site occurs along the coast and is characterized by steep, sheer, rocky cliffs and dropoffs. Slopes are 125 - 200% and elevations are from 0 to 1000 feet.

**VEGETATION:** Dominant grasses are Bluejoint (*Calamagrostis canadensis*), Mountain Timothy (*Phleum alpinum*), Alpine Fescue (*Festuca brachyphylla*), and Red Fescue (*Festuca rubra*). Forbs are Nootka Lupine (*Lupinus nootkatensis*), Fireweed (*Epilobium angustifolium*), Wild Celery (*Angelica lucida*), Hemlock Parsley (*Conioselinum chinense*), and Wild Geranium (*Geranium erianthum*). Shrubs are Arctic Willow (*Salix arctica*), Low Bush Cranberry (*Vaccinium vitis-idaea*), and Crowberry (*Empetrum nigrum*). Kamchatka Rhododendron (*Rhododendron camtschaticum*) is abundant in some areas.

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 30% grasses and grasslikes, 40% forbs, and 30% shrubs. Average annual herbage production is 200 pounds/acre.

**VALUE FOR GRAZING:** The site is not grazed and is considered low value for grazing. This site provides excellent nesting habitat for sea birds and is extremely important as a bird rookery.



ECOLOGICAL SITE NO. 171XA999AK  
NAME: UNACCOUNTED LAND

**FEATURES:** This site represent an average of the high and moderately valued sites. This "catch all" site was developed to provide accountability for those miscellaneous land types as a result of GIS errors.

**VEGETATION:** Dominant plants are Bluejoint (*Calamagrostis canadensis*) and Fireweed (*Epilobium angustifolium*), with shrubs like Salmonberry (*Rubus spectabilis*), Willow (*Salix spp.*), and Alder (*Alnus spp.*).

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Seventy-eight percent of the plant community is preferred forage. Average annual herbage production is 3000 pounds/acre.

**VALUE FOR GRAZING:** The best season of use for grazing is spring and early summer. This site also can provide winter forage at the lower elevations, that are relatively snow free during winter, but forage value is low. The site is rated as moderate value for livestock.



ECOLOGICAL SITE NO. 171XA028AK  
NAME: FRESH WATER

**FEATURES:** This site occurs immediately around the fringes of lakes, fresh water lagoons, rivers, and creeks. Typically the area is mapped as water. Elevations are from 30 to 500 feet. Slopes are from 0 to 2% but most of the areas are 0%.

**VEGETATION:** Vegetation is typically characterized by sedges such as Water Sedge (*Carex aquatilis*), Lyngbye's Sedge (*Carex Lyngbyei*), and Smoothstem Sedge (*Carex laeviculmis*). Rushes (*Juncus spp.*) also occur with small stands of Tall Cottongrass (*Eriophorum angustifolium*). Major forbs are Buck-Bean (*Menyanthes trifoliata*), Marsh Marigold (*Caltha palustris*), Wild Iris (*Iris setosa*), and Buttercup (*Ranunculus spp.*).

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 60% sedges and 40% forbs. Annual production can be 5000 to 6000 pounds/acre, but an average annual production used for calculating stocking rates is 400 pounds/acre. Most areas of this site are non-productive areas of water.

**VALUE FOR GRAZING:** The best season of use is spring, summer, and fall. Access is difficult during the spring months and better as water levels drop throughout the early summer months. Grazing in early spring during breakup and the onset of plant growth may damage this site if this pattern of use continues every year at the same time. The site could be damaged by trampling during this time if livestock numbers are excessive. This site is low grazing value.



ECOLOGICAL SITE NO. 171XA026AK  
NAME: GRAVEL BEACH

**FEATURES:** This site occurs immediately adjacent to the ocean. It includes low and high tide zones as well as the storm tide affected zones. Elevations are 0 to 10 feet above sea level. Slopes are 0 to 5%. This site occurs intermittently along the beach zone, depending upon parent material and age of beach material.

**VEGETATION:** No vegetation grows on this site. Flotsam and Kelp accumulate on the beach.

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** None.

**VALUE FOR GRAZING:** This site does provide some very important forages during all seasons. Large quantities of Kelp accumulate on the beach after major storm tides during any time of the year. Important minerals such as salt (sodium chloride), and elements such as potassium, iodine, phosphorus, and trace elements can be acquired from the Kelp and help supplement potential mineral deficient diets. This site is high value in winter when Kelp is available, but rated overall as having moderate grazing value. The site is used by all wildlife and livestock if access is not restricted.



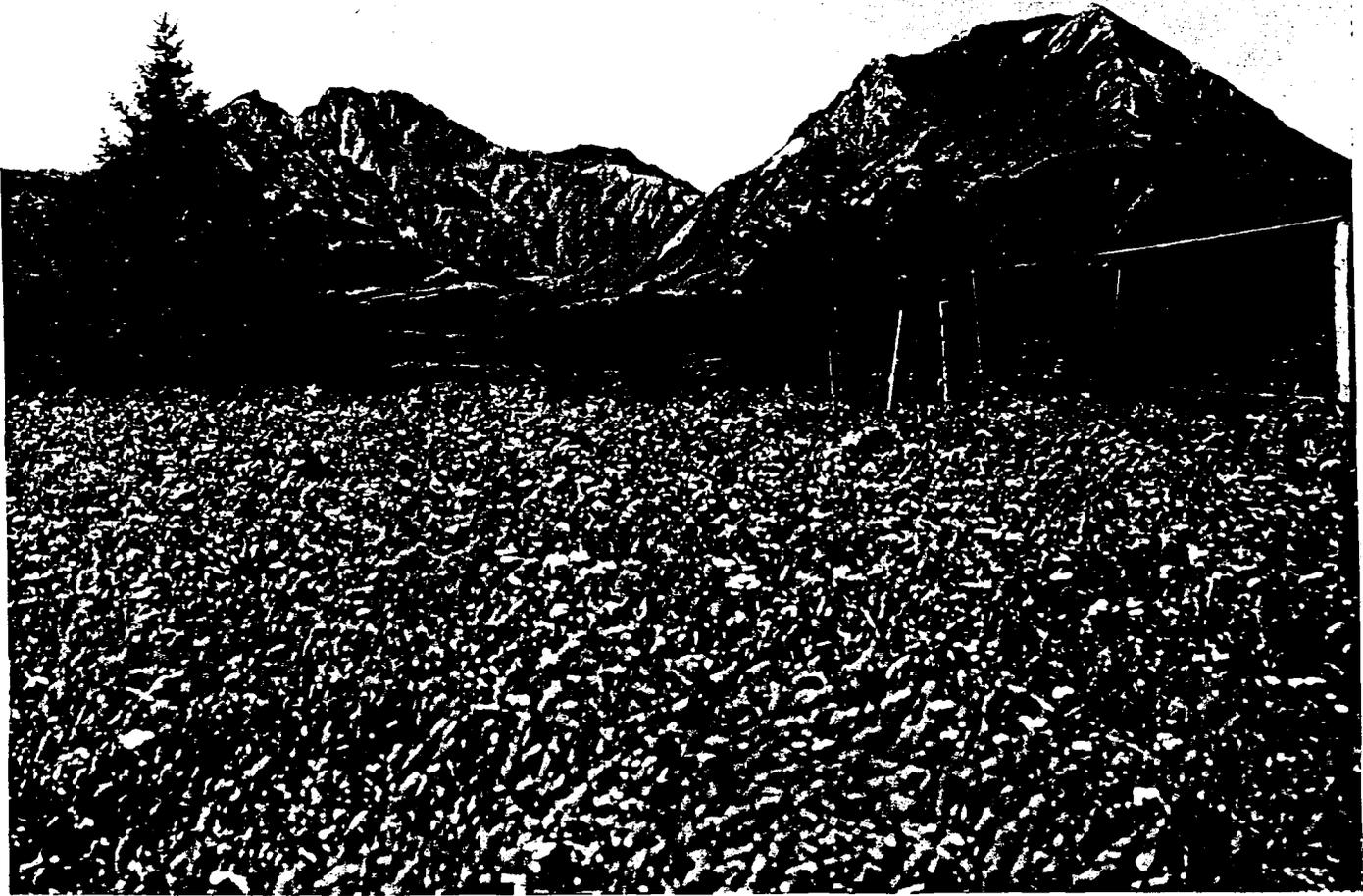
ECOLOGICAL SITE NO. 171XA025AK  
NAME: SITKA SPRUCE FOREST

**FEATURES:** This site occurs scattered around the island at elevations ranging from 20 to 600 feet above sea level. Slopes range from 0 to over 100%. The site occurs in valleys, on foothills, ancient alluvial fans, terraces, and mountain side slopes.

**VEGETATION:** This site is characterized by Sitka Spruce (*Picea sitchensis*) with a sparse understory of ferns, forbs, and mosses. Grasses are sparse. Major understory plants found in mature and old growth Sitka Spruce forest are Oak Fern (*Gymnocarpium dryopteris*), Devil's-Club (*Oplopanax horridus*), and Ladyfern (*Athyrium filix-femina*). There are small quantities of Bluegrass (*Poa*) and other grass species.

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 20% grasses and grasslikes, 80% forbs. Average annual herbage production is 100 pounds/acre. Mature tree foliage, leader growth, trunk and limbs are not included in the production value.

**VALUE FOR GRAZING:** This area is low value for livestock grazing.



ECOLOGICAL SITE NO. 171XA024AK  
NAME: SITKA SPRUCE WOODLAND

**FEATURES:** This site occurs on the lower portions of mountain ranges, hills, and valleys on areas above floodplains and wet meadows. The site occurs on all slopes typically occupying elevations of 100 to 600 feet.

**VEGETATION:** This site is characterized by scattered pioneering stands of Sitka Spruce (*Picea sitchensis*) which occupy up to 20% of the canopy cover. The understory is made up of an abundant community of grasses, forbs, and shrubs. Dominant grasses are Bluejoint (*Calamagrostis canadensis*), Fescue (*Festuca altaica*), and Tufted Hairgrass (*Deschampsia caespitosa*). Forbs are Fireweed (*Epilobium angustifolium*), Canadian Burnet (*Sanguisorba stipulata*), and different ferns. Shrubs are American Green Alder (*Alnus crispa*) with Willows (*Salix spp.*).

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 15% grasses and grasslikes, 20% forbs, and 65% shrubs and small seedling trees. Average annual herbage production is 4300 pounds/acre. Mature tree foliage, leader growth, trunk and limbs are not included in the production value.

**VALUE FOR GRAZING:** The best season of use for grazing is during spring and summer. Deep snow accumulates in this site during winter. The site is rated as high value for grazing.



ECOLOGICAL SITE NO. 171XA022AK  
NAME: LOAMY BOTTOMLAND

**FEATURES:** This site occurs in valley bottoms along streams, rivers, and floodplain areas that are infrequently flooded. Slopes are 0 to 2% and elevations are typically 20 to 600 feet.

**VEGETATION:** This site is characterized by a dense stand of Black Cottonwood (*Populus trichocarpa*) with an understory of grasses, forbs, and shrubs. Dominant grasses are Bluejoint (*Calamagrostis canadensis*) and Tufted Hairgrass (*Deschampsia caespitosa*). Forbs are Wild Celery (*Angelica genuflexa*), Fireweed (*Epilobium angustifolium*), and Canadian Burnet (*Sanguisorba stipulata*). Shrubs are Red Elderberry (*Sambucus racemosa*) with Willows (*Salix spp.*) and Alder (*Alnus spp.*).

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 23% grasses and grasslikes, 20% forbs, and 57% shrubs and small seedling trees. Average annual herbage production is 3125 pounds/acre. Mature tree foliage, leader growth, trunk and limbs are not included in the production value.

**VALUE FOR GRAZING:** The best season of use for grazing is during spring and summer. Deep snow may accumulate in this site during winter, however, during years of light snow fall, this site could also be grazed during the winter season. This site is high grazing value.



ECOLOGICAL SITE NO. 171XA015AK  
NAME: BEACH DUNES AND RIDGES

**FEATURES:** This site is characterized by sand dunes and sandy/gravelly beach ridges that run parallel to the coasts of the Pacific Ocean, Bering and Arctic Seas. Elevations range from 5 to 50 feet above sea level.

**VEGETATION:** Dominant plants are American Dunegrass (*Elymus arenarius ssp. mollis*), Speargrass (*Poa eminens*), Sea Vetchling (*Lathyrus maritimus*), Nootka Lupine (*Lupinus nootkatensis*), Scottish Wild Lovage (*Ligusticum scoticum*), and other forbs.

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 60% grasses and grasslikes, 40% forbs. Average annual herbage production is 3700 pounds/acre.

**VALUE FOR GRAZING:** It is best to save this site for winter grazing. Early spring grazing is detrimental and repeated years of grazing during the spring will reduce the productivity of this site. Winter forage is low quality but can get animals through the winter. This site is generally available to grazers and is one of the more snow free sites in the area. This site is high grazing value.



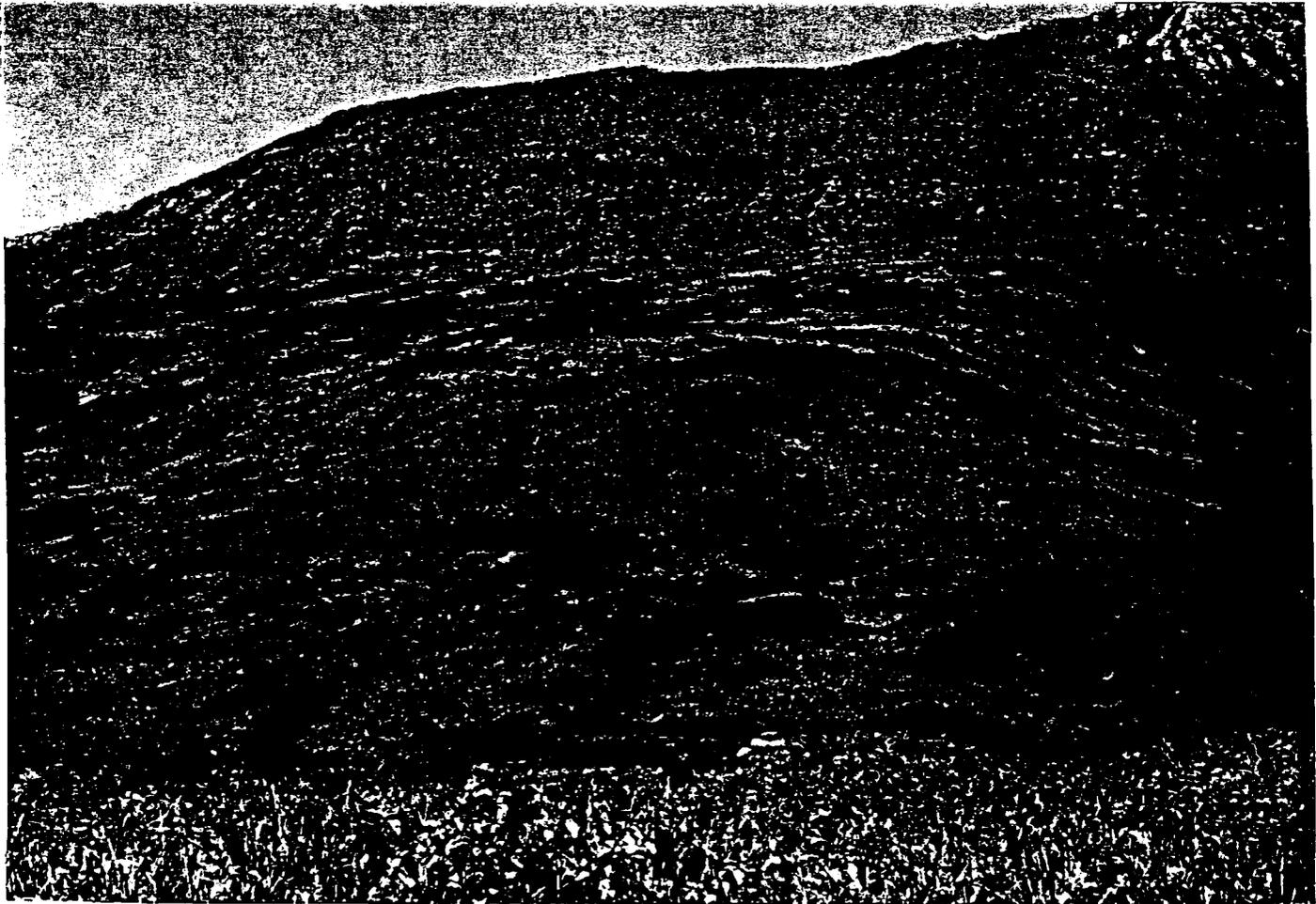
ECOLOGICAL SITE NO. 171XA014AK  
NAME: WET MEADOW

**FEATURES:** This site occurs at the lower elevations between 20 and 200 feet above sea level. Slopes range from 0 to 7% but most of the areas are 0 to 2% slope. This site lays in depressions, between valleys and terraces; at the foot of mountains and alluvial slopes; and along stream and river corridors.

**VEGETATION:** Vegetation is typically characterized by grasses and sedges. Dominant sedges and grasses are Water Sedge (*Carex aquatilis*), Lyngbye's Sedge (*Carex Lyngbyei*), Smoothstem Sedge (*Carex laeviculmis*), Tall Cottongrass (*Eriophorum angustifolium*), with small scattered areas supporting Bluejoint (*Calamagrostis canadensis*). Major forbs are Wild Celery (*Angelica genuflexa*), Tall Jacob's-Ladder (*Polemonium acutiflorum*), Fireweed (*Epilobium angustifolium*), Wild Iris (*Iris setosa*), and Buttercup (*Ranunculus spp.*). There are a few scattered clumps of Willows (*Salix spp.*) in some areas.

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 80% grasses and grasslikes, 20% forbs with a trace of shrubs. Average annual production is 3000 pounds/acre.

**VALUE FOR GRAZING:** The best season of use is fall and winter when soil moisture levels are low or the ground is frozen. Grazing in early spring during breakup and during the onset of plant growth may damage the plants if this pattern of use continues every year at the same time. The site is subject to trampling damage during this time if livestock numbers are excessive. This site is high grazing value.



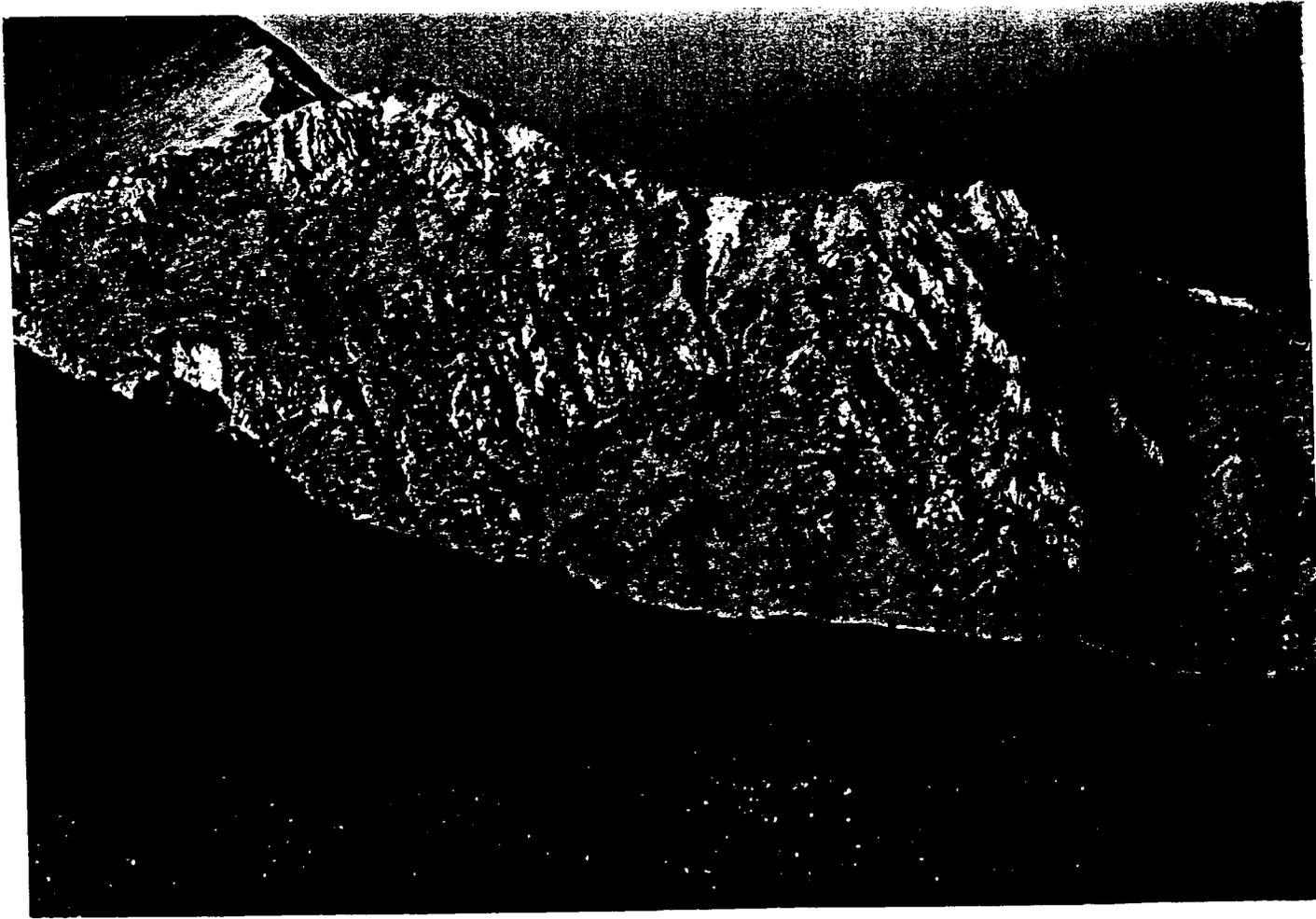
ECOLOGICAL SITE NO. 171XA002AK  
NAME: STEEP STONY UPLANDS

**FEATURES:** This site occurs on very steep mountain slopes and immediately below ridge lines. Most slopes are over 45% and elevations range from 50 to 1500 feet. There are areas of rocky outcrops.

**VEGETATION:** This area is predominately Bluejoint (*Calamagrostis canadensis*), with Fireweed (*Epilobium angustifolium*), Red Elderberry (*Sambucus racemosa*), Tufted Hairgrass (*Deschampsia caespitosa*), Marsh Fern (*Thelypteris phegopteris*), and Salmonberry (*Rubus spectabilis*).

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 50% grasses and grasslikes, 35% forbs, and 15% shrubs. Average annual herbage production is 5000 pounds/acre.

**VALUE FOR GRAZING:** The best season of use for grazing is summer. On the upper ranges of this site, much of the area is inaccessible. Steep slopes and dense alder thickets limit livestock access, especially when vegetation has reached its maximum growth. Rock outcrops do not significantly impede grazing. Deep snow in winter prohibits grazing the upper elevations of this site. This site is rated as high for grazing value.



ECOLOGICAL SITE NO. 171XA001AK  
NAME: ROUGH MOUNTAINOUS LAND

**FEATURES:** This site occurs on ridge and mountain tops. Most slopes are over 60% and elevations range from 1000 to 2000 feet.

**VEGETATION:** This area is above the treeline. Dominant plants are Bluejoint (*Calamagrostis canadensis*), Nootka Lupine (*Lupinus nootkatensis*), Fireweed (*Epilobium angustifolium*), and Arctic Willow (*Salix arctica*).

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 20% grasses and grasslikes, 50% forbs, and 30% shrubs. Average annual herbage production is 1000 pounds/acre.

**VALUE FOR GRAZING:** The best season of use for grazing is summer. Much of this area is inaccessible due to rough broken terrain, rock outcrops, and steep slopes. Most areas cannot be grazed by cattle and bison. Deep snow in winter prohibits use of this area during November-March. This site is rated as moderate value for livestock grazing.



ECOLOGICAL SITE NO. 171XA004AK  
NAME. STEEP LOAMY SLOPES

**FEATURES:** This site occurs on gentle mountain slopes and hills. Slopes are 7 to 45% and elevations range from 50 to 1500 feet.

**VEGETATION:** This area is predominately Bluejoint (*Calamagrostis canadensis*), Fireweed (*Epilobium angustifolium*), Ladyfern (*Athyrium filix-femina*), Red Elderberry (*Sambucus racemosa*), Arrow-Leaf Ragwort (*Senecio triangularis*), Tufted Hairgrass (*Deschampsia caespitosa*), and Salmonberry (*Rubus spectabilis*).

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 40% grasses and grasslikes, 45% forbs, and 15% shrubs. Average annual herbage production is 3545 pounds/acre.

**VALUE FOR GRAZING:** The best season of use for grazing is spring, summer, and fall. Livestock have a difficult time reaching the upper elevations of this site. Deep snow in winter prohibits use of the upper elevations of this site whereas the lower elevations are relatively snow free. This site is rated as high grazing value.



ECOLOGICAL SITE NO. 171XA003AK  
NAME: LOAMY SLOPES

**FEATURES:** This site occurs on gentle mountain and hill sideslopes, broad alluvial fans, and terraces. Slopes are 0 to 30% and elevations range from 50 to 1500 feet.

**VEGETATION:** Dominant plants are Bluejoint (*Calamagrostis canadensis*) and Fireweed (*Epilobium angustifolium*), with a few forbs and Salmonberry (*Rubus spectabilis*).

**VEGETATION COMPOSITION AND PRODUCTION (Air Dry):** Composition is 80% grasses and grasslikes, 10% forbs, and 10% shrubs. Average annual herbage production is 3600 pounds/acre.

**VALUE FOR GRAZING:** The best season of use for grazing is spring and early summer. This site also can provide winter forage at the lower elevations, which are relatively snow free during winter, but forage value is low. This site is rated as high for grazing value.

RASTER MAP CATEGORY REPORT

LOCATION: UTM.5

Wed Apr 26 15:09:15 1995

REGION north: 6388980 east: 548700  
 south: 6363000 west: 506600  
 res: 20 res: 20

MASK: kodiak.per in kodiak, categories 1-4

MAPS: permits (kodiak.per in kodiak)  
 Reclass of kodiak.soils in utm.5 (kodiak.soils in kodiak)

Category Information		acres	% cover
#	description		
4	BURTON_A011253	24,409.032	24.93
2	ChB Chiniak silt loam, gently sloping. . . . .	19.274	0.08
3	ChC Chiniak silty loam, moderately sloping . . . . .	61.182	0.25
4	Ka Kaisin silt loam . . . . .	78.479	0.32
5	Kb Kizhuyak loamy fine sand, high water table . . . . .	152.312	0.62
6	Kc Kizhuyak loamy fine sand, low water table. . . . .	28.071	0.12
7	KdB Kodiak silt loam, gently sloping . . . . .	1103.450	4.52
8	KdC Kodiak silt loam, Moderately sloping . . . . .	115.247	0.47
9	KdCC Kodiak silt loam, rolling. . . . .	1107.206	4.54
10	KdD Kodiak silt loam, hilly. . . . .	1882.111	7.71
11	KdE Kodiak silt loam, steep. . . . .	2601.469	10.66
13	KfD Kodiak silt loam, forested, hilly. . . . .	176.825	0.72
14	KfE Kodiak silt loam, forested, steep. . . . .	488.961	2.00
16	KgF Kodiak and Pyramid silt loams, very steep. . . . .	2625.981	10.76
17	Os Olds silt loam . . . . .	342.975	1.41
18	PaA Pasagshak silt loam, nearly level. . . . .	1209.505	4.96
19	PaB Pasagshak silt loam, gently sloping. . . . .	372.923	1.53
20	PmD Pyramid loamy fine sand, hilly . . . . .	296.915	1.22
21	PmE Pyramid loamy fine sand, steep . . . . .	59.205	0.24
22	PmF Pyramid loamy fine sand, very steep. . . . .	4552.768	18.65
23	SaA Salonie silt loam, nearly level. . . . .	459.211	1.88
24	SaB Salonie silt loam, gently sloping. . . . .	9.093	0.04
25	Sb Saltery peat . . . . .	42.600	0.17
27	SdA Saltery-Ugak complex, nearly level . . . . .	695.735	2.85
28	SdB Saltery-Ugak complex, gently sloping . . . . .	127.306	0.52
29	SdC Saltery-Ugak complex, moderately sloping . . . . .	15.913	0.07
30	ShA Sharatin silt loam, nearly level . . . . .	146.184	0.60
32	Gb Gravel beaches . . . . .	274.973	1.13
34	Rm Rough mountainous land . . . . .	4780.397	19.58
35	Se Sea cliffs . . . . .	241.268	0.99
36	W Water. . . . .	341.492	1.40