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EAGLE RIVER - CHUGIAK - EKLUTNA COMPREHENSIVE PLAN

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**PREPARED BY
PHYSICAL PLANNING DIVISION
ANCHORAGE PLANNING DEPARTMENT**

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PREFACE

The Eagle River-Chugiak-Eklutna Comprehensive Plan was prepared on the basis of the most recent data, public input, and professional analysis. However, the planning effort that went into this Comprehensive Plan was still, to a large extent, a continuation upon previous efforts that were made by individual citizens and organized groups. Most notable were:

- * Eagle River-Chugiak Land Use Plan, citizens' effort sponsored by the Eagle River Valley Community Council (1977-78).
- * Chugiak Eagle River Comprehensive Plan, Anchorage Planning Department with assistance from the Eagle River Planning Advisory Committee (1975-76).
- * A Sketch Land Use Plan for the Eagle River-Chugiak Area. GAAB Planning Department (1972).

The fruition of their efforts are contained in this plan.

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INTRODUCTION

The need for a Comprehensive Plan for the Eagle River-Chugiak-Eklutna area has become quite evident over the past few years. The area's population has grown from 5,832 in 1970 to 14,400 in 1978. The growth rate for this area is anticipated to continue accelerating. The most reliable current population projection for the Eagle River-Chugiak-Eklutna area for the year 2000 is 64,000 people--more than a four-fold increase over today's population.¹

The current and anticipated growth of population has led to a broad range of reactions and feelings toward it by residents of the Eagle River-Chugiak-Eklutna area. Many people feel the area has grown enough or is growing too fast. Others feel there is nothing wrong with expansion, while still others feel it is inevitable.

The Eagle River-Chugiak-Eklutna area is now, and will continue to undergo a transition with varying degrees of impacts. Locations that are relatively undeveloped feel the impact of nearby growth. Visual and physical changes occur. Life styles change; people live closer together. People's surroundings become distinguished by structures rather than natural features. The woods become dotted with homes and traffic increases.

Accompanying the transition from wooded to open developed areas are environmental effects. Greater impervious surface coverage and devegetation of woodlands increases water runoff and erosion. In certain areas, slope development leads to glaciation and unstable soils. In other areas, ground water supply may become more scarce. Care must be taken to protect ground water supply and to avoid pollution of the area's waterways, some of which may become future sources of community water supply. Development must also be done skillfully to avoid unnecessary destruction of the natural environment.

Rapid population growth inevitably brings economic change. A growing population increases the commercial base. The Eagle River-Chugiak-Eklutna area is attracting additional shopping centers and other retail and service oriented enterprises. In addition, development pressure has led to rising land values and higher land prices. As prices rise, so do local taxes.

¹Alaska Water Study Committee, Southcentral Water Resource Study (Level B), 1979

Another problem facing the Eagle River-Chugiak-Eklutna area in its transition is that of supplying services and public facilities adequately to meet the needs of the residents. Water and sewerage facilities are already inadequate--if not non-existent--in certain areas where they currently are needed. Additionally, schools, parks, and improved transportation will need to be provided. The difficulties, inefficiencies and costs of providing services are linked closely to patterns of development.

As the area continues to grow and as decisions are made on development, public investment, and management, the Eagle River-Chugiak-Eklutna Comprehensive Plan should be a point of reference for those decisions.

INVENTORY AND STUDY AREA DESCRIPTION

Location

The Eagle River-Chugiak-Eklutna area begins approximately ten miles north of the Anchorage metropolitan area and extends northeastward for approximately fifteen miles where it ends at the Municipal boundary at the Knik River. To the south and west of the Eagle River-Chugiak-Eklutna area and separating it from Anchorage is the Fort Richardson Military Reservation. The area is bounded to the east by the Chugach Mountains and State Park, and to the northwest by Knik Arm. Thus, the area is approximately fifteen miles long and, with the exception of the Eagle River, Peters Creek, and Eklutna Valleys, is roughly three miles wide.

The principal community in the area is Eagle River, located at the southern end near the intersection of the Eagle River and the New Glenn Highway. Other more rural residential areas further north include Fire Lake, Chugiak, Birchwood, Peters Creek, and Eklutna.

The New Glenn Highway traverses the length of the area, connecting Anchorage to the south with the Matanuska-Susitna Borough to the north.

General Physical Characteristics

Topography: The Eagle River-Chugiak-Eklutna area forms the northeast portion of the Anchorage lowland, an area of generally low relief that slopes westward from the rugged Chugach Mountain front to Cook Inlet. Whereas the Anchorage area is of a relatively uniform relief, the Eagle River-Chugiak-Eklutna area has extensive hummocky terrain that locally rise to over 300 feet.

A line can be drawn along the base of the Chugach Mountains. The area east of that line is characterized by very steep slopes--up to 100%. West of that line, between the mountains and Knik Arm, the topography varies from level to slopes in excess of 45%. Eagle River Valley is the deepest penetration into the Chugach Mountain Range. Other valley penetrations are the Peters Creek and Eklutna River Valleys.

Soils: The soil characteristics and hydrology are the result of the area's glacial history. A soils analysis indicates that a wide variety of unconsolidated or surficial material was deposited in the area as a result of glacial activity thousands of years ago. As glaciers advanced and retreated, glacier ice deposited a complex mixture of unstratified gravel, sand, silt, and

clay. Sediment laden meltwater streams flowing within, adjacent to and in front of the glaciers deposited stratified sand and gravel while clay and silt deposits were laid down in still water.

The remainder of the surficial material was deposited after the retreat of the last glaciers from this area. These deposits include a thin veneer of windlaid silt covering much of the lowlands, sand dunes along the sea bluff, alluvium along present streams, clay and silt deposited in recent lakes and the present tidal zones, and organic material or peat deposited in swamps throughout the lowland.

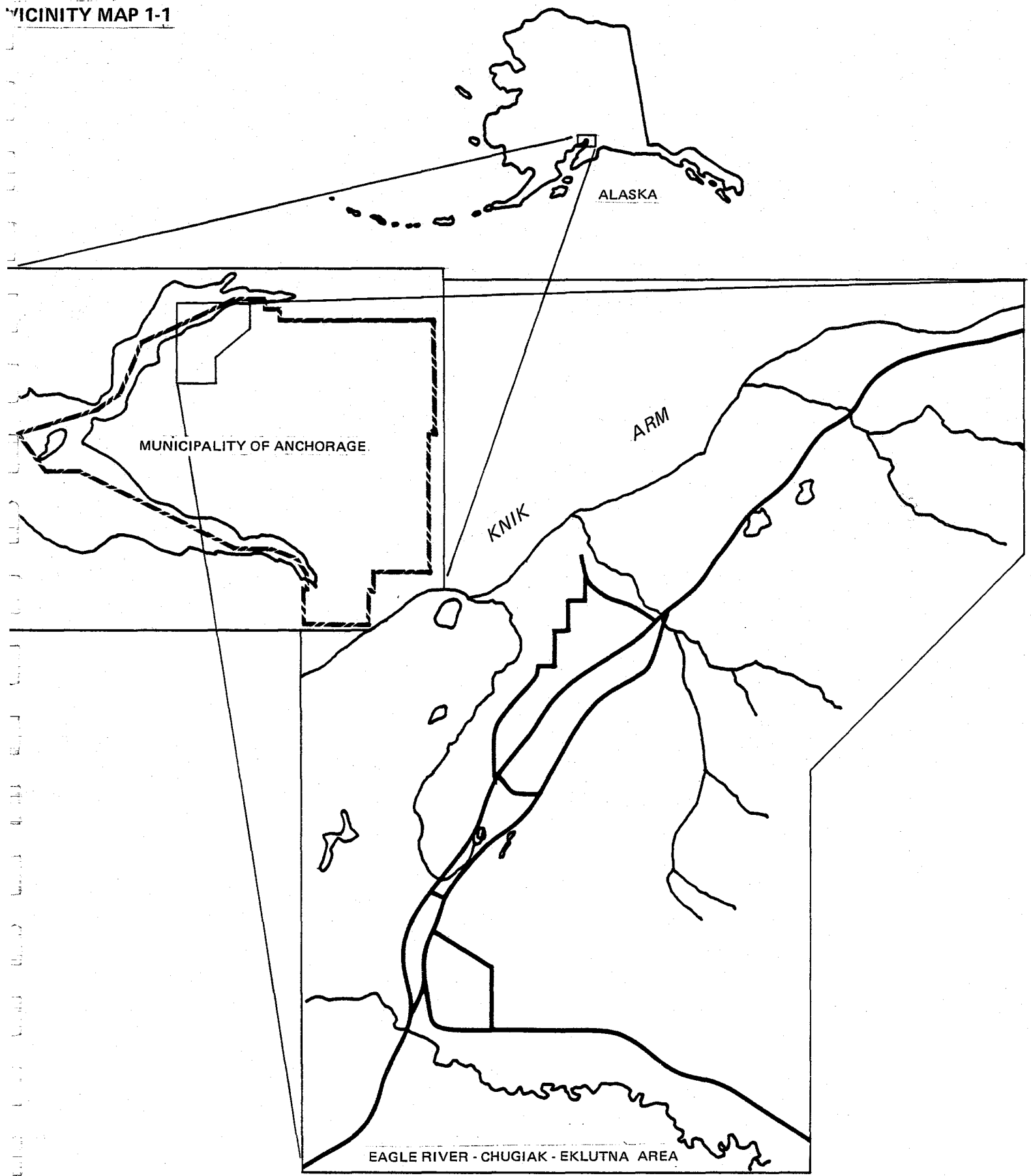
Hydrology: Drainage in the Eagle River-Chugiak-Eklutna area is generally to the west and northwest. The Eagle River is the major stream in the area. The source of the river is Eagle Glacier, about twenty-five miles up stream from Knik Arm. Its main tributaries are South Fork and Meadow Creek. Several other streams drain the western slopes of the Chugach Mountains and the lowland. North from Eagle River, the significant ones include Fire Creek, Peters Creek, Little Peters Creek, Thunderbird Creek, and Eklutna River (most of the latter is currently directed to the Eklutna Power Project for the generation of hydroelectric power).

The largest lake in the area is Eklutna Lake. Located near the head of the Eklutna Valley, it is seven miles in length and one mile in width. Several other smaller lakes are scattered throughout the lowland area. Significant ones include Edmonds, Mirror, Beach, Psalm, Upper Fire, Lower Fire, and Clunie Lakes. The primary uses of these lowland lakes are recreation and open space, and fish and waterfowl habitat. Residential development surrounds Lower Fire Lake, and portions of Upper Fire Lake and Mirror Lake.

Knowledge of the location, depth, and extent of major sources of ground water is still sketchy. This is due primarily to the inconsistency of the soils in the area and the nature of the underlying bedrock. Geologic and hydrologic information indicates that there is no continuous areawide aquifer system beneath the land surface in the Eagle River-Chugiak-Eklutna area.

The primary interest in ground water is for its use as a source of potable water supply. Ground water sources are normally found in bedrock and surficial deposits of unconsolidated materials. A U.S. Geological Survey report published in 1974 provides the most reliable information on the general characteristics of ground water in the Eagle River-Chugiak-Eklutna area. The

VICINITY MAP 1-1



interpretations are, to a large extent, based on analyses of data from 375 well logs from ground water wells located throughout the area. The conclusions are that weathered and fractured bedrock will yield only small amounts of water to wells--the only major exception known to date being the well at Chugiak High School. Surficial deposits of unconsolidated materials will provide a greater success of obtaining ground water. However, "available evidence indicates that the types of geologic materials from which ground water can be recovered in adequate quantities for even single-family use are limited in number and areal extent."² An unpublished update to the 1974 report was done in 1978 from additional well log data and reaffirmed the basic interpretations and conclusions of the earlier report.

Vegetation: Extensive woodlands cover the Eagle River-Chugiak-Eklutna area where development or man-made alterations have not yet occurred. With few exceptions, areas above the timberline are located within Chugach State Park. The location and extent of vegetative types vary throughout the lowland and mountain valleys, depending upon local soils and drainage conditions. In well-drained areas of permeable soils, birch, aspen, and upland spruce are dominant. Poorly-drained areas with impermeable soils contain bottomland spruce, muskeg, and alders. Marshes also occur adjacent to tide flats and estuaries along Knik Arm, most notably at the mouths of Eagle River, Fire Creek, Eklutna River and Knik River.

Fish and Wildlife: The Eagle River-Chugiak-Eklutna area has abundant wildlife habitats. The streams and lakes support several species of sport fish, primarily salmon and rainbow trout. Most notable is Eagle River, which supports sizeable runs of King, Pink, Silver and Red Salmon in addition to Dolly Varden. A varied resident bird population inhabits the area. The area's bogs, marshes, ponds, and lakes provide nesting and feeding grounds for migratory waterfowl.

Numerous species of mammals also inhabit the area. Some are conspicuous because of their size and habits while others are more withdrawn and affected by human activity.

Most numerous and commonly seen of the large mammals are moose. Other large mammals are less common and

²Zenone, Chester, Henry Schmoll and Ernest Dobrovolny, Geology and Groundwater for Land Use Planning in the Eagle River-Chugiak Area, Alaska, U.S. Department of Interior, Geological Survey, 1974.

found primarily in the Chugach Mountains and associated valleys. They are dall sheep, black bear, and grizzly bear.

Smaller mammals that reside throughout the area include lynx, beaver, muskrat, mink, otter, weasel, hare, red squirrel and porcupine.

Climate

The Eagle River-Chugiak-Eklutna area lies within a transition zone between the dry continental temperature extremes and the relatively stable moist maritime climate. The Chugach Mountain Range acts as a barrier, inhibiting the expansion of the two air masses. Thus, the climate in the area is quite variable. Where glaciers exist in the mountains, the precipitation is quite heavy, yet a few miles down the valley, the precipitation is much lower. A nineteen year climatic record from the Eklutna Project of general applicability throughout the area records an average annual temperature of 33.6 F. Temperature extremes vary from 92°F to -41°F.

During the period September through April, winds are predominantly northerly near the surface and southerly at mountain tops, and southerly at the surface and mountain tops during the summer months. Areas adjacent to valleys and constricting mountains may experience maximum wind velocities between 90-100 mph, and velocities exceeding 70 mph may be expected one year in four.

Total precipitation in the area is in the range of fifteen to twenty inches. Snowfall is in the range of fifty to sixty inches, commencing normally in October and continuing into April. Rainfall primarily occurs during middle to late summer.

During periods of static atmospheric conditions, normally experienced during cold weather, chilled dense air settles in the lowlands and valleys and drives the temperatures colder than normal. Usually this situation will persist until air movement is sufficient to mix the cold surface air with the higher, warmer air.

The depth of freezing in the area may run eight to fourteen feet, but this is highly variable. Depth of freezing varies from one locale to the next, depending on underlying soils and drainage and depth of snow cover.

Population

The population within the Eagle River-Chugiak-Eklutna area has characteristics different from those found within the Anchorage metropolitan area. Overall population densities are much less because of the emphasis on the rural life style, the physical constraints on land development, and the distance from the major employment centers. An exception to this is the community of Eagle River which has a limited public utility infrastructure and population density commensurate with that of suburban Anchorage.

Demographic data obtained from a housing survey done in 1977 presents some distinguishing features about the area's population. Demographic findings include the following:³

- Mean number of people per household is 3.7
- Mean number of children at home under eighteen is 1.33
- 84.6% of the housing is detached single family dwelling units
- 89.7% of housing units are owner-occupied
- 57.7% satisfied with area in which they live

These statistics are fairly similar to subcommunities located in south and east Anchorage where the social character is family-oriented and the predominant housing type is the detached single family dwelling.

The current population of the Eagle River-Chugiak-Eklutna area is approximately 14,400. The growth rate for this area has been one of the highest in the Municipality of Anchorage for a number of years. It is anticipated to continue to be so, at an increasingly more rapid rate. The following figures indicate the Eagle River-Chugiak-Eklutna population as a percent of the total population of the Anchorage Municipality.

Table 1

	1960	1970	1978	2000
Eagle River-Chugiak-Eklutna	2.7	4.7	7.2	15.0

³1978 Population Profile, Municipality of Anchorage, Municipality of Anchorage/Anchorage Urban Observatory, 1978.

As the Anchorage area continues to grow, the Eagle River-Chugiak-Eklutna area will obtain a proportionately greater share of the population increase. One of the basic reasons for this will be the continued availability of land for detached single-family housing as land for such development becomes more scarce in south Anchorage.

Table 2 lists the most recent population projections for the Municipality of Anchorage. These population projections are derived through an econometric model from employment force estimates that are based on proposed assumptions of economic activity anticipated to occur throughout the State of Alaska. The middle range projection is considered to be the most reasonable and is supported by other economists. The rate of growth changes throughout the projection period as employment activity is anticipated to fluctuate.

Table 2

Municipality of Anchorage Population
Projections, 1980-2000⁴

	1980	1985	1990	1995	2000
High Range	206,000	255,200	324,100	391,900	500,600
Middle Range	205,200	232,000	276,000	334,200	425,000
Low Range	205,000	226,700	261,100	309,700	375,200

Table 3 indicates population projections for the Eagle River-Chugiak-Eklutna area according to the rate of growth that is expected to occur using the middle range projection. This is also assuming that there will be no sewer or water constraints on development in the community of Eagle River after 1980.

Table 3

Eagle River-Chugiak-Eklutna Population
Projections, 1980-2000

1980	1985	1990	1995	2000
14,800	20,900	29,500	44,400	64,000

⁴Alaska Water Study Committee, Southcentral Water Resources Study (Level B), 1979.

Current Land Use and Ownership

Current land use and ownership patterns along with many community attitudes were established as a result of Federal, State, and local actions taken several years ago. To better understand the Eagle River-Chugiak-Eklutna area today, the present time should be put into brief perspective with the past.

The Past:⁵ The original inhabitants of the Eagle River-Chugiak-Eklutna area were native people generally known as the Tanaina. They were a loose grouping of people whose range was confined primarily to the Upper Cook Inlet region. The Tanaina were divided into "tribes," yet all these tribes were present in this area and intermingled freely. They were primarily a fishing and hunting culture moving about on a seasonal basis--down to the Anchorage area establishing fish camps for salmon and other marine life; into the mountains for bear, sheep, goat, parka squirrel, and moose. All game was utilized to the fullest and shared equally among the people.

With the coming of the Russians in the 1840's, this lifestyle began to fade as missionaries and traders established themselves. Indian settlements arose, primarily at Old Knik, near the present day village of Eklutna. Subsistence hunting still remained a major part of their lifestyle.

The construction of the Alaska Railroad, with its imposition of "right-of-way" and the burning and clearing of land for settlement by newly-arrived non-native residents, seriously disrupted the native lifestyle. Around 1917, the name of Old Knik was changed to Eklutna, where a small number of the remaining native people live today.

By 1916, the Alaska Railroad had been completed to Eagle River. Construction facilities, an amusement

⁵Much of this section originates from the 1976 draft Comprehensive Plan written by the Planning Department staff. The original sources of information were as follows:

Alex, Mike, Community Leader, Eklutna, 1973,
Personal Communication

Jordan, Lee, Member, Eagle River-Chugiak Chamber
of Commerce, 1973, Personal Communication.

Prince, B.C., The Alaska Railroad, 1964, pp. 24-25.

hall, a small hospital and fifteen cottages were built for the people there, but later abandoned. In the late 1920's, a hydroelectric power plant (the Old Eklutna Power Project) was developed off the Eklutna River, primarily by the efforts of an early Anchorage citizen. The City of Anchorage purchased the plant in 1943 and continued the plant operation until 1954. At that time, it was bought by the Bureau of Reclamation and replaced by the new Eklutna Power Project.

Although non-native people had lived in the area earlier, the first homestead of 160 acres was not granted until 1930 in the Chugiak area. In 1935, the first homestead was granted in the Fire Lake area. In 1947, nine families living near present-day Chugiak formed a social club and decided to call their area "Chugiak", an Indian word meaning, "A place of many places." In 1950, thirty-two families were living in Chugiak, twenty-seven in Eagle River. Beginning in the mid-50's, people began to develop small lot residences in Eagle River. In 1956, a shopping center was built in Eagle River which established the trend of increasing development in that community. Chugiak--including neighboring Birchwood and Peters Creek-- has never experienced such growth and has remained more rural.

The Present: Today, Eagle River is an identifiable community which exhibits certain characteristics similar to suburban subcommunities within the Anchorage metropolitan area. Further east, up Eagle River Valley, and north of Fire Lake the area remains predominantly rural, though increasing residentially.

Three uses--residential, public, vacant--still dominate the Eagle River-Chugiak-Eklutna area. Residential use is the most widespread. Lot sizes vary from 6,000 square feet up to original homesteads of over one hundred acres.

For the most part, Eagle River has residential lot sizes averaging from 8,000-18,000 square feet. Development in upper Eagle River Valley and the South Fork has been on lots varying from one to five acres in size. Most development in the Fire Lake and Birchwood areas are on two and one half acre homesites or subdivided one and one quarter acre lots. In Chugiak and Peters Creek, residential development has taken place on lot sizes varying from 10,000 square feet up to several acres. However, the predominant lot sizes that are developed still seem to be from one to five acres. North of Edmonds Lake, the area remains vacant with the exceptions of the Eklutna Village, a small mobile home park, and a new half-acre lot size, sparsely developed

subdivision. A small number of inhabitants are also scattered in Eklutna Valley.

Public uses that are currently developed include various transportation facilities, educational facilities, power and communication facilities, sanitary and public safety facilities. A limited amount of public recreational facilities are also developed in the area. (A more detailed description of public facilities begins on page 13.)

Although commercial uses are expanding, the industrial and commercial uses are still relatively few. The industrial uses are so few that they could be enumerated by establishment.

In Eagle River, commercial land use has generally been concentrated in a strip fashion along both sides of the Old Glenn Highway and along the north end of Eagle River Loop Road. Newer commercial development is taking place west of the Old Glenn Highway in Regional Park Subdivision. Additional commercial development is expected near the intersection of Eagle River Loop Road and Eagle River Road.

Outside Eagle River, most commercial development is sparsely scattered along the Old Glenn Highway at Chugiak and Peters Creek, and west of the intersection of North Birchwood Loop Road and the New Glenn Highway. Throughout the Eagle River-Chugiak-Eklutna area, a number of business enterprises are carried out from the home.

Commercial activity is primarily local serving. Major employment in the area makes up approximately seven percent of the total population.

Community development in the Eagle River-Chugiak-Eklutna area and the resultant land use patterns have, for the most part, been the result of construction of the Alaska Railroad, construction of the Glenn Highway (and later New Glenn Highway), homesteading, and the subdivision of many of the homesteads.

In addition to developed land use patterns, land ownership (and management) patterns have also significantly affected community development, and will continue to do so in the future. Most significant are three major ownerships. First, land was withdrawn by Executive Order in the early 1940's for military purposes. The result is Ft. Richardson Military Reservation, which acts as a barrier to community expansion on the south and west sides of the Eagle River-Chugiak-Eklutna area.

Second, the State Legislature in 1970 established Chugach State Park. The park acts as an additional barrier to development to the east. However, with eventual development of park facilities, Chugach State Park could attract tourists and park users to the area.

The third major ownership is the establishment of Eklutna, Inc.--a Native Village Corporation--as the largest private landholder in the area. Under the terms of the Alaska Native Claims Settlement Act, which was passed by Congress in 1971, Eklutna, Inc. is entitled to 116,000 acres of Federal land. A major portion of that entitlement (roughly 11,700 acres) is located within the Eagle River-Chugiak-Eklutna area.

Of the selections that are located within the Eagle River-Chugiak-Eklutna planning area, the following approximated acres are in large consolidated tracts:

- 6000 acres in Eagle River Valley
- 1800 acres southwest of Fire Lake and west of the Glenn Highway
- 1000 acres between the New and Old Glenn Highway
- 1900 acres north of Peters Creek (excluding town-site allotments)

An additional 1000 acres have also been selected in smaller scattered tracts throughout the entire area, though mostly in the Birchwood area. Transfer of title to lands selected by Eklutna, Inc. has been slow, and to date, only a small portion of the entitlement has been received.

A fourth ownership, though of less significance in total acreage is Municipal ownership of land within the Eagle River-Chugiak-Eklutna area. The Municipality of Anchorage currently owns over 2,100 acres--most of which is in Beach Lake and Edmonds Lake Regional Parks. However, under the Municipal Land Entitlement Act which was passed by the Alaska State Legislature in 1978, the Municipality of Anchorage has selected from the State 6,800 acres of land in the Eagle River-Chugiak-Eklutna area. A large portion of the lands selected are in mountainous terrain and would more than likely be designated for open space and watershed protection.

Circulation

Transportation is provided through the area by the New Glenn Highway, a divided four-lane highway that will eventually have limited access, thus becoming a freeway. A number of major roads provide transportation within the area. Eagle River Road extends eastward for twelve miles through upper Eagle River Valley.

Eagle River Loop Road extends around the east and north side of the Eagle River community. The Old Glenn Highway begins in downtown Eagle River and extends northeast through Chugiak, and crosses the New Glenn Highway north of Peters Creek and ends at Mirror Lake. Birchwood Loop and Birchwood Airport Access Roads serve the Birchwood area.

The Alaska Railroad also passes through the Eagle River-Chugiak-Eklutna area, though farther west in more uninhabited portions of the area. Close proximity to existing developed areas is primarily in Birchwood, particularly near the Birchwood Airport.

Recreation

The Eagle River-Chugiak-Eklutna area is surrounded by a significant amount of recreational lands, though currently undeveloped. Chugach State Park is the largest. A general development plan was completed for the park which would provide for outdoor recreational facilities from Eklutna Valley south to Eagle River Valley. However, lack of funding has prevented implementation of the development plan. Other State recreation areas are Thunderbird Falls Wayside, Mirror Lake Wayside, Peters Creek Campground, and Eagle River Campground.

The Municipality of Anchorage has two large parks in the area, which also remain undeveloped. Edmonds Lake Regional Park consists of 523 acres and is located north of Peters Creek. Beach Lake Regional Park consists of 1612 acres and is located west of Birchwood, adjacent to Ft. Richardson Military Reservation.

The development of recreational facilities in Chugach State Park and the two municipal regional parks could make this a major recreational area.

Developed community recreational facilities are quite limited. Facilities consist of the Eagle River Lions Park, the Chugiak Benefit Association Community Center, and the Peters Creek Community Club. In addition, the Isaac Walton League has a shooting range next to Birchwood Airport.

The Anchorage Parks and Recreation Service Area does not include the Eagle River-Chugiak-Eklutna area. However, in 1976, the Chugiak-Eagle River Recreation Service Area was formed, consisting of the area of the

former Chugiak-Eagle River Borough.⁶ The Chugiak-Eagle River Recreation Facility Advisory Board was also established. A half mill is levied from property-owners within the service area for purposes of recreational development. Although the five-member board directs the allocation of funds for local recreation facilities, it does not have the ability to acquire land. Lands have been provided through private organizations.

Public Facilities, Utilities and Services

Airport Facilities: The Eagle River-Chugiak-Eklutna area is served with the State-operated Birchwood Airport, which is a paved general utility airport with accommodation to a basic transport airport. It has a single paved runway with a length of 4,010 feet and width of 100 feet--dimensions similar to those at Merrill Field in Anchorage. Unlike Merrill Field, it is a non-controlled airfield.

Birchwood Airport is located adjacent to the Alaska Railroad just southwest of Peters Creek, near Knik Arm. With the exception of the railroad and the Isaac Walton League shooting range, surrounding lands are undeveloped. The State Division of Aviation has indicated that there is very little land remaining that is available for runway expansion.

The airport has approximately 200 planes tied down on site--mostly single-engine aircraft. There are two fixed-base operators located at the airport. Most use of the airport is for flight instruction, touch-and-go landings, and use by the operators of the planes located at the site. The airport facility could currently accommodate tie-down space for about 250 planes. If additional tie-down space was to be developed, the ultimate number could be approximately 500.

Sewer: The only public sewer system in the Eagle River-Chugiak-Eklutna area is in the community of Eagle River. Constructed in 1971, it consists of a collection system and treatment plant. The treatment plant is located on military land just west of Eagle River on a long-term permit, and discharges effluent into the Eagle River. The treatment plant is currently

⁶People of this area had for some time expressed a desire to form their own government. This effort was climaxed in 1974 when the residents voted to form their own second class borough. However, the new borough was declared unconstitutional by the courts the following year.

overloaded, however, expansion and up-grading is planned for this year.

The system currently serves various portions of the community. The Municipal Six-Year Capital Improvement Program calls for extending sewer service within the general Eagle River community area where development will most likely occur, and where it is most needed.

The remaining area disposes of waste water by use of on-site septic systems. Some areas already have problems with ground water contamination from septic systems. A major concern is protecting ground water supply from possible contamination in areas where a public sewer system will not be provided.

Water:⁷ There is currently no municipal water utility system in the Eagle River-Chugiak-Eklutna area. There presently exist six small private water utilities that are certified by the Alaska Public Utilities Commission. Four of the certified systems serve areas within Eagle River. They are:

- * Bell Utilities, Inc.
- * Palos Verdes
- * Sunny Slopes Water System
- * Eagle River Heights Utilities, Inc.

In Eagle River, there also exist several small cooperative-type neighborhood systems. Combined with the certified utilities, they serve approximately half of the population in the community. The remaining half of the community's population relies on individual wells for their water supply.

None of the certified systems in Eagle River have fire hydrants or the production capability to provide fire flows without adding storage. Additionally, the Sunny Slopes system was constructed with pipes ranging in size from one and one-half inches to four inches and a portion of the Eagle River Heights Utilities was constructed with three inch pipe. The general practice for community water systems that provide full fire protection is to use lines six inches or larger. The Anchorage Water Utility currently requires all lines to be at least eight inches in diameter. Except for Sunny Slopes and Eagle River Heights systems, all of the existing distribution lines are of sufficient size to be used in a fully integrated community system.

⁷Much of the information in this section is taken from a water supply and distribution study prepared by Quadra Engineering, Inc. for the Alaska State Department of Environmental Conservation in 1977.

It will be necessary to upgrade all of the water system in order to provide fire protection. This will require, at a minimum, the addition of fire hydrants for all of the utilities and the replacement of the undersized lines in Sunny Slopes and Eagle River Heights.

Generally, the ground water supply in the Eagle River community is characterized by a large number of relatively low-yield wells (less than twenty gpm). The most successful area has been in the area of an earlier deposit of the Meadow Creek alluvial fan.

It should be noted however, that some wells drilled in the Meadow Creek deposit have not produced water. In 1978, three test wells were drilled under the auspices of the State Department of Environmental Conservation for the purpose of finding additional community water resources. Results were unsuccessful. Since the ability to find good producing wells (even for residential uses in some areas) is limited, the problems associated with dependency on individual wells as a water source are becoming more acute as the community develops. This problem, in addition to the requirement for fire protection and reduced insurance rates, will make the need for a fully integrated water utility inevitable.

The remaining portion of the Eagle River-Chugiak-Eklutna area population relies on individual wells for their water supply. Exceptions are subdivisions served by two small certified private water utilities. They are Dawn Subdivision at Peters Creek and Thunderbird Heights Subdivision at Eklutna. Unless additional ground water sources are found to be of sufficient quantity, or major public investments are made in developing an integrated water supply and distribution system for the areas outside Eagle River, those areas will remain rural with low density large-lot development.

Schools: There are currently four elementary schools and one junior/senior high school in the Eagle River-Chugiak-Eklutna area. Two of the elementary schools are located in the community of Eagle River, one is located in the Birchwood area, and one is in Chugiak. The junior/senior high school is located midway between Eagle River and Peters Creek near the intersection of South Birchwood Loop Road and the New Glenn Highway.

The Anchorage School District is currently planning to construct a new junior high school in the Eagle River-Chugiak-Eklutna area. Thus, students in grades 7 and 8

would be in a separate facility than those in grades 9-12. The Anchorage school district is also in the process of selecting an additional elementary school site, to be located in the Eagle River valley. The timing of need for the school site has not yet been determined. To a large extent, it will depend upon whether the School Board adopts the concept of a "middle school." If the School Board adopts the concept, the new junior high school will become the middle school. Students in sixth grade will be bused to the middle school, thus freeing additional space in the existing elementary schools.

Using age distribution data from a household survey done in 1975,⁸ and assuming that those basic age distribution trends continue to the year 2000, the following additional school facilities would be needed in the Eagle River-Chugiak-Eklutna area:

<u>1990</u>	<u>2000</u>
3 elementary schools	9 elementary schools
1 junior high school	1 junior high school
(to be constructed by 1980)	1 senior high school

Public Safety: Previously, the Eagle River-Chugiak-Eklutna area was provided with limited police protection by the Alaska State Troopers. Beginning April 1 of this year, the State Troopers were replaced by Anchorage Municipal patrolmen. Current service consists of one patrol car on duty in Eagle River, and one other north on a 24-hour basis. Additional support also comes from detectives, traffic officers, and juvenile officers. The Municipal police force operates from a sub-station in Eagle River.

Eagle River is provided fire protection and emergency medical service by municipal personnel. By the end of this year, they will be operating out of a new facility to be located at the west end of Eagle River Road. The residents of Chugiak-Birchwood-Peters Creek provide their own fire and emergency medical service through volunteers.

Solid Waste: Since the Eagle River land fill closed in 1977, there has been no Municipal solid waste disposal facilities in the area for use by commercial haulers and individuals. Solid waste disposal is currently provided by two private refuse haulers Anchorage Refuse, Inc. and Eagle River Refuse, Inc. who must transport the refuse into Anchorage for disposal.

⁸1976 Population Profile (Municipality of Anchorage, Anchorage Urban Observatory, September, 1974

The Municipality of Anchorage is planning to construct a solid waste transfer station this year to provide services to commercial haulers and individuals. The site will be located at Eagle River on a 5-acre tract west of the Glenn Highway off of Artillery Road.

The transfer station will consist of an enclosed structure where refuse will be dumped into a receiving push pit. Refuse will then be compacted and loaded into transfer trailers and moved to Anchorage on a daily basis for processing and disposal.

The establishment of the transfer station will greatly alleviate current insufficiencies. However, it will not be able to handle large quantities of demolition and construction debris. Such wastes will still have to be transported to Anchorage for disposal.

Mass Transit: Mass transit bus service is provided from Anchorage to the Eagle River-Chugiak-Eklutna area six days of the week. During weekdays, service is provided as far north as North Birchwood Loop; and on Saturdays, only as far as Eagle River. Two buses are used for rush hour service, and one bus for off-peak service. There is currently no intra-area bus service.

Electrical and Telephone Service: Electrical power for the Eagle River-Chugiak-Eklutna area is provided by Matanuska Electric Association--an REA cooperative. Telephone service is provided by Matanuska Telephone Association.

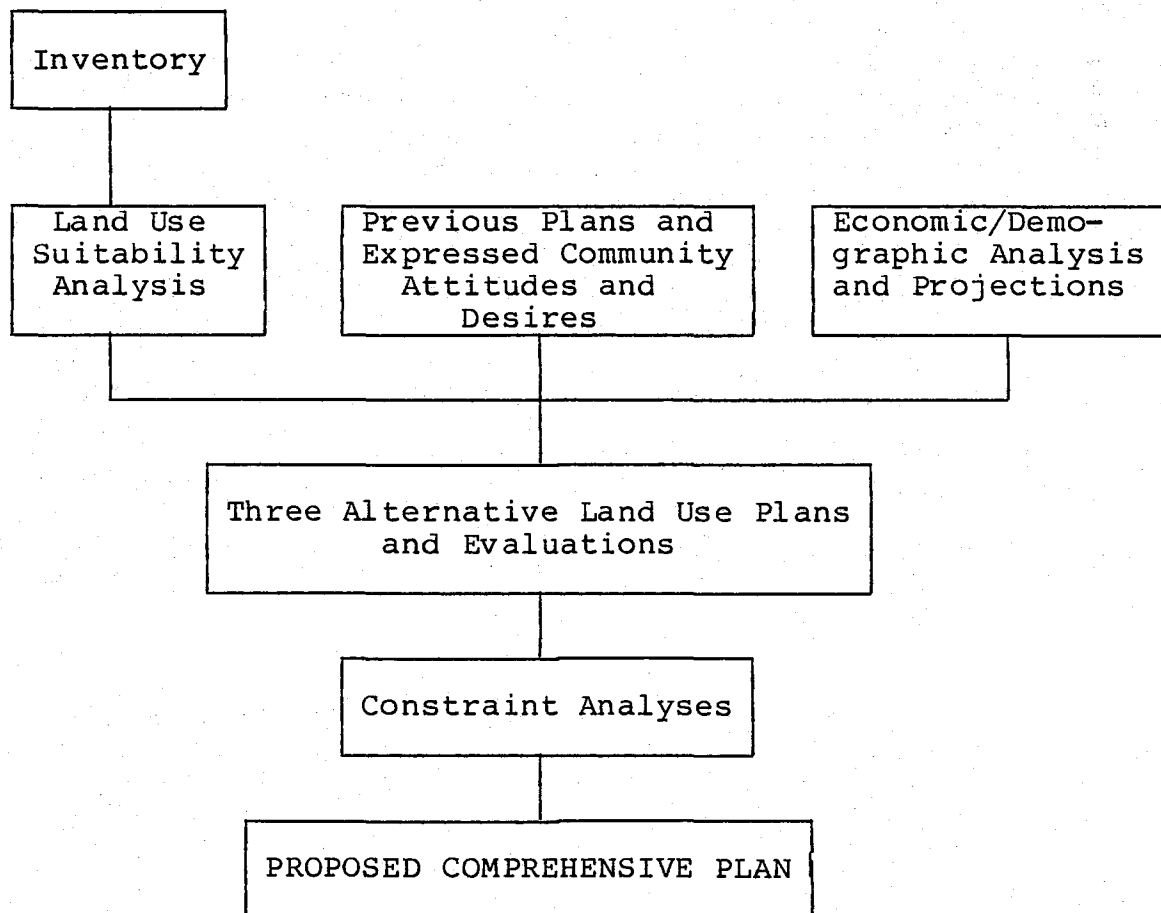
PLAN DEVELOPMENT PROCESS

Introduction

The development of the Comprehensive Plan for the Eagle River-Chugiak-Eklutna area has progressed through a series of previous plans. The major assumptions and constraints upon which much of the plan is based are the result of recent economic/demographic analysis and projections, and recent inventorying and physical analyses--the latter of which were done as a part of the Anchorage District Coastal Management Program.

Plan Development Sequence

The basic plan development sequence can best be seen and understood in the following diagram.



Inventory and Land Use Suitability Analysis: The inventory and land use suitability analysis were done as part of the Anchorage District Coastal Management Program. The intent of the program is basically to preserve and properly utilize the nearshore coastal zone areas. To analyze the effects of inland development upon coastal areas and resources, the CZM program established a planning area boundary of 1000 feet vertical contour within which biophysical and socioeconomic resources were inventoried. The inventory dealt with such factors as -

- * Physiography
- * Hydrology
- * Soils
- * Vegetation
- * Wildlife
- * Geophysical Hazards
- * Land Use
- * Land Ownership

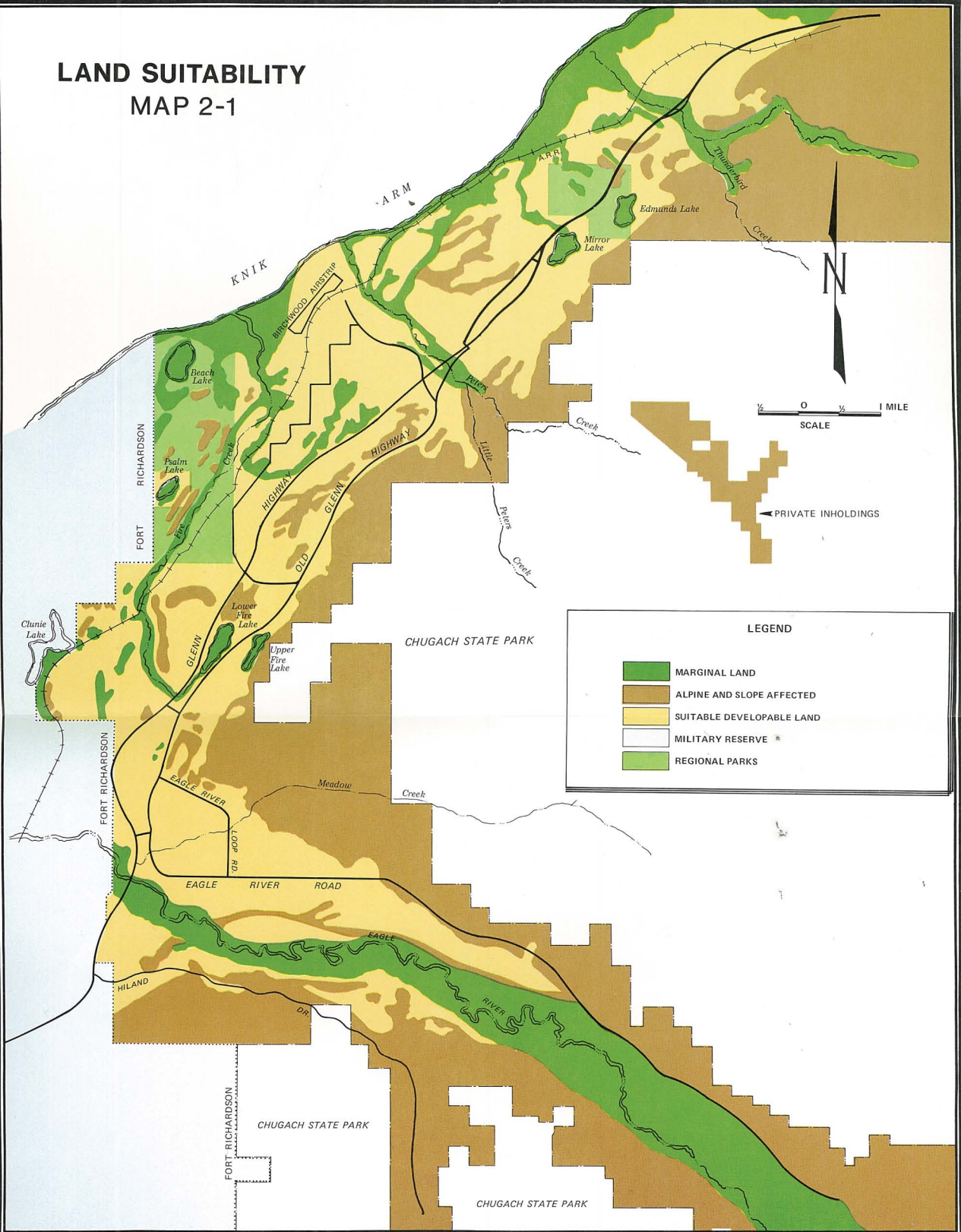
An analytic methodology was developed that identified land resources under three categories of use: preservation, conservation, and utilization. This PCU approach provided a basic description of an area's suitability for preservation, conservation, and development. Definitions of these use categories are as follows:

Preservation: The Preservation environment consists of areas characterized by the presence of some unique natural or cultural features considered valuable in their undisturbed or original conditions and which are relatively intolerant of intensive human use. Those lands and/or water areas are identified as having major ecological, hydrological, physiographic, hazardous, historical, archeological, cultural, or socioeconomic importance to the public. Such areas should be essentially free from development and large enough to protect the value of the resource.

Conservation: The Conservation environment consists of those lands identified as having certain natural or institutional use limitations which require special precaution prior to their use or development. Conservation areas would include the smaller tracts of lesser ecological sensitivity and biological importance. While the natural environment is not maintained in a pure state, all activities and uses to be carried out provide minimal adverse impact. Lands classified as Conservation would be those requiring special precautions when being developed, or designated for recreation and open spaces.

LAND SUITABILITY

MAP 2-1



Utilization: The Utilization environment means those lands suitable for development, already developed or officially committed to an acceptable development activity, or undeveloped but suited for development giving full consideration to environmental safeguards, design, engineering, construction and planning practices.

Following an inventory of the Eagle River-Chugiak-Eklutna area, a land use suitability analysis was made utilizing the PCU use classification. The purpose of the analysis was to identify those areas not suitable for development. The results were plotted on the Land Suitability Map (see Map 2-1).

Marginal land refers to those areas classified Preservation. Alpine and slope affected land refers to those areas classified Conservation that are either alpine or with slopes greater than 25%. Suitable land refers to those areas classified Utilization.

Previous Plans, Expressed Community Attitudes and Desires: At the center of the plan development process was the establishment of three alternative land use plans. The purpose of the alternative land use plans was to obtain a clear expression from the area residents on what direction community development should take. In preparation of those alternatives, previous plans were reviewed in conjunction with public expression given over the past several years at various public hearings and gatherings regarding the issue of development in the Eagle River-Chugiak-Eklutna area. From this review, two major issues emerged. They are:

- * "bedroom" community vs. "balanced" community, and
- * strip commercial development vs. cluster commercial development.

One of the objectives of the Comprehensive Plan is to come to terms with these two basic issues. Thus, the three alternative land use plans incorporated varying resolutions of these two issues.

The distinction between a "bedroom" community and a "balanced" community is based upon the amount and type of local employment. A bedroom community is one where the predominant portion of the employed residents commute to another area to their place of work. Such a community has a small commercial and industrial base that is primarily geared toward serving the local residents. A "balanced" community, on the other hand, is one that has a large commercial and industrial base so that the place of work for the greater portion of the employed residents remains within the community.

Presently, the Eagle River-Chugiak-Eklutna area is a bedroom community. According to a recent survey, local employment is estimated at approximately 7% of the population. In comparison, Anchorage is a balanced community where more accurate data indicates local employment totalling approximately 48% of the population.

The three alternative land use plans projected employment bases as follows:

LOW DENSITY	6.7% of population
MODERATE DENSITY	20.6% of population
HIGH DENSITY	48% of population

The local employment alternatives ranged from the current status quo of the community to a community with employment characteristics similar to those found in Anchorage.

A key element in allowing the desired range of the local employment base to develop was the availability of an adequate amount of land for commercial and industrial use. In addressing the issue of availability of land for commercial development, the second major issue emerged--strip vs. cluster development.

Commercial strips are linear shopping developments along arterial streets or highways. Activities along them are primarily commercial, but office, residential, and light industrial users are also common. All these uses front directly onto the arterial, making the strip only one parcel deep on each side of the strip. Strips are typically unrelated in function or form to the activities behind them.

Originally the product of the streetcar, in Alaskan communities they are the creation of the automobile. With the automobile as the primary source of non-pedestrian transportation, arterial streets are an obvious necessity. Consequently, strip developments exist for good reason. Auto-oriented businesses are attracted to the strip--auto sales and service, drive-in restaurants, banks, and motels. Many businesses of other types also locate on strips because they can not afford to locate in shopping centers. For these businesses, the strip provides good automobile access and good opportunity for being seen by motorists. Moreover, shoppers can often park at the door. Strip locations are made for impulse buying, for handling heavy consumer goods, and for single-purpose stops. For many consumers, strips are a convenience; for many businessmen, they are a necessity.

Although commercial strips have their advantages, they also create real problems. They generate noise and congestion, advertising becomes garish and distracting, and they blight any area through which they run. Alaska's largest city has prime examples of commercial strip development--north entrance to the city on Fifth Avenue, Old Seward Highway, Spenard Road, Muldoon Road. They also appear in small communities, particularly during times of rapid growth. Wasilla is an obvious example.

Strips affect the quality of an entire community because of their extensiveness. They are among the most visible elements of the community.

For the latter reasons, many people are opposed to strip commercial development. These people would prefer to have commercial businesses clustered at specific locations that are accessible and convenient, not inhibiting or a nuisance, nor blight to adjacent areas. Typically, cluster development contains a variety of complementary businesses. Thus, there is the convenience to those shoppers having to make several types of purchases in one trip.

The most typical form of cluster development is the shopping center, which is not without its disadvantages. Besides being unavailable for some types of businesses, they can also be unaffordable for others. If poorly located--particularly prematurely--a shopping center can become a blight to the area and difficult to change. Cluster development is not as easily accommodating to change as strip development.

Presently, Eagle River has the only distinguishable commercial development pattern in the Eagle River-Chugiak-Eklutna area. It is primarily strip commercial development along the Old Glenn Highway and the northern end of Eagle River Loop Road. However, cluster commercial development is starting to occur in Regional Park Subdivision just west of the existing strip development. With few existing land management controls, commercial development--cluster or strip--could occur in any number of locations in the future. The three alternative land use plans reflected the various attitudes and values toward the location and configuration of commercial development.

Economic/Demographic Analyses and Projections: General assumptions that were made in the development of the three alternatives concerned population, employment, and facilities costs. Each alternative had a different assumed rate of growth over a twenty-year period of

time. The results were population projections for the year 2000 ranging from 60,000 to 95,000.⁹ Using this range of design population projections, needed amounts of commercial and industrial acreages were calculated. Acreages were based on differing ratios of employment to total population, and differing intensities of land use. The employment ratios reflected the differing attitudes on community character ranging from bedroom community to balanced community. Differing land use intensity ratios of employees per acre were based on data of comparative areas within metropolitan Anchorage.

Comparative cost evaluations for public facilities were made for each alternative. Evaluations were made for schools, parks, sewer, water and roads. (The Appendix contains a more detailed description of the calculations used in determining the range of needs for commercial and industrial acreages, and comparative cost evaluations for public facilities.)

Alternative Land Use Plans and Evaluations: Three alternative land use maps were developed, each of which reflected differing attitudes toward the residential nature of various parts of the Eagle River-Chugiak-Eklutna area. In addition, each alternative land use map reflected differing attitudes toward the location of commercial development. The low density alternative reflected the current pattern of development extrapolated ahead twenty years to a population of 60,000. It assumed the establishment of a sanitary sewer system to accommodate urban/suburban development within the community of Eagle River and as far east as Mile 3 in Eagle River valley. A community water system would also be provided to serve the same area. Areas outside Eagle River beyond the extension of sewer and water facilities would be retained with lower density development from one to two dwelling units per acre with on-site facilities. Some of the rural areas would have a slightly higher rural density with small shared water supply systems. Total public investment costs for public facilities were the lowest. However, costs per dwelling unit, or unit costs, were the highest.

The moderate density alternative was most distinguished residentially from the low density alternative by the establishment of suburban densities (3-9 dwelling units

⁹Figures were based on MAUS Study population projections made in 1977. More recent projections have lower population totals ranging from 56,000 to 75,000. However, the analytic process was still applicable for comparative purposes.

per acre) in the Peters Creek area. As a result, Peters Creek would establish a sewer system with collection and treatment in separate facilities from those at Eagle River. It was also assumed that an adequate source of water supply would be available to serve the higher densities. Unit costs for public facilities were the most cost-efficient.

The high density alternative called for public sewer and water to be developed throughout the entire area north of the Eagle River. Exceptions were Birchwood, portions of the Fire Lake area, and the east side of Peters Creek. Land development under this alternative would require the largest amount of public investment of the three alternatives, though cost per individual dwelling unit would be the lowest.

Commercially, the low density alternative land use map reflected the attitude toward cluster development--particularly north of Eagle River. In Eagle River, strip development was still reflected where it is currently located.

The moderate density alternative reflected a mixture of strip and cluster development. Most of the additional commercial acreage needed for a moderately-balanced community was located in Eagle River with some additional strip development in the Chugiak area.

The high density alternative reflected strip commercial development as the dominant character for the area, most notably along the Old Glenn Highway through Chugiak and Peters Creek.

(The Appendix contains a more detailed description of the three land use alternatives in addition to reductions of the three alternative land use maps.)

Constraint Analyses: Three alternative land use maps were developed with differing population densities and levels that reflected various policies regarding future area development. These alternatives were presented for public review in order to gain an expression of which direction area development should proceed. Before developing a recommended land use plan with proposed population densities, land use patterns and related policy guidelines, further analyses were needed to better determine the feasibility of the alternatives. Feasibility was determined by four constraints:

- 1) unavailability of physical resources,
- 2) unavailability of financial resources,
- 3) incompatibility with existing land use and subdivision patterns, and
- 4) lack of community support.

The presence of one of the constraints would hinder an alternative. The presence of two or more would make it infeasible.

The physical resources most needed for any future development are suitable land and water. The availability of suitable land had already been identified. The availability of water was not adequately identified for two of the three alternatives. The high density alternative would require an extensive water system from Eklutna to Eagle River. As was indicated previously, major ground water sources are unknown, due to the geological and glacial origins of the soils and hydrology of this area.

The moderate density alternative would require a community water system in Eagle River and Peters Creek. Indications from certain existing wells in Eagle River are that the Eagle River community may be able to be supported from local ground water sources. Otherwise, the Eagle River may have to be utilized in connection with a facility to serve the Anchorage metropolitan area. Peters Creek area is somewhat doubtful. Though there is an alluvial fan at Peters Creek, it is composed of complex surficial deposits. Further investigation would be needed to determine ground water source potential. If water is to be provided to Peters Creek for suburban densities, it will more than likely have to come from a source(s) in the immediate locale, or from diversion of water from the Eklutna Power Project.

The low density alternative calls for development of a community water system in Eagle River. As indicated earlier, lack of water should not be as great a constraint. However, additional ground water sources may be needed if an Eagle River diversion dam is not forthcoming in the next five to seven years. An additional need in Eagle River is an integrated water system that has storage capacity to provide fire flows.

Lack of known adequate water supply sources is a major constraint to the high and moderate density alternatives. The only mitigation of this constraint seen possible at the present time is either the development of Eagle River or the diversion of water from the Eklutna Power Project. These two potential alternatives are being identified in a water supply study recently being completed by the U.S. Army Corps of

Engineers.¹⁰ However, these water supply alternatives also have their drawbacks. Eagle River's main problem is land status. Lands upon which a dam and reservoir would be developed will be conveyed to Eklutna, Inc. under terms of the Alaska Native Claims Settlement Act. Though Eklutna, Inc. may be interested in marketing water as a private utility, they may find water development too large a project financially. Thus, Eklutna, Inc. may utilize the land for other purposes. Diverting water from Eklutna Power Project has cost as its major drawback. The estimated cost of development and utilization of that water source is over \$40,000,000. The price tag may be too high, even as a municipal undertaking.

The second constraint is the unavailability of financial resources. Financing for water has already been mentioned. Another major facility(ies) needed for the high and moderate alternatives is additional sanitary sewer system. The high density alternative would require sewerage the Chugiak, Peters Creek and Eklutna areas. The moderate alternative would only require new sewerage in Peters Creek. A tentative location for the treatment plant would be near the mouth of Peters Creek, and possibly a second plant near the Eklutna River. Under the Clean Water Act of 1977, Federal funds should be available for another five years to help alleviate the cost of constructing Municipal waste water treatment systems. However, even with Federal and State financial support, the Municipality of Anchorage would still have to provide local funding for at least 12 1/2% of the total cost of construction of the treatment plant and interceptor lines. The Municipal share would require local and areawide voter approval in order to sell general obligation bonds to finance the Municipal share of the construction costs. Local voters would more than likely not make financial resources available. This leads to the third major constraint--community support.

Through various meetings, public hearings, informal and unofficial surveys, a strong consensus appears among the residents living north of Fire Lake. They share a strong desire to retain their local community in a "rural" atmosphere. Though rural atmosphere has never been defined, indications are that it means development on no less than 1 1/4-acre lots. Such density would not make sanitary sewer system cost-effective, nor even necessary. Local community support from Fire

¹⁰Metropolitan Anchorage Urban Study, Part V-
Water Supply (Draft Report) U.S. Army Corps of
Engineers/Municipality of Anchorage, July, 1978

Lake to Peters Creek does not exist for any alternatives that propose densities that are contrary to the rural lifestyle which they wish to preserve.

The fourth constraint is incompatibility with existing land use and subdivision patterns. Much of the Fire Lake, Birchwood, Chugiak, and east Peters Creek areas were platted under the BLM homesite program. Since those original plats took place, many of those 2½-acre homesites have been split to 1¼-acre lots. The existing road patterns and plat patterns in these areas have become well established. Because of the location of structures and configuration of rights-of-way and easements, changing the density of these areas would be a difficult task. Densities could not be increased beyond one dwelling unit per acre unless they were increased to suburban densities that could support a sewer and water system. Without sewer and water, the carrying capacity of most land north of Fire Lake is no more than one dwelling unit per acre.

The importance of the constraint analyses in the plan development sequence was to subject the various land use alternatives to the test of reality--that which is feasible. The usefulness of a Comprehensive Plan as a policy guideline will only be as good as the support it receives and the soundness of its applicability.

Public Participation Process

Public participation in the development of this Comprehensive Plan began several years ago with the development of other draft plans mentioned earlier. Eagle River-Chugiak-Eklutna area residents have voiced their aspirations and values toward the issue of area development in a number of different forums. This input laid the foundation for the basic concepts identified on the three alternative land use maps.

To assist the Planning Department on the development of this particular plan, a Citizen Advisory Committee was established. The committee members met with the planning staff regularly, reviewed the staff's work, provided information from their respective communities, and advised the staff in development of the plan.

The Citizen Advisory Committee consisted of ten members. Two members were selected from each of the four major community councils. Members were selected by their respective community councils to represent their area and indicate concerns of those areas to the planning staff. Eklutna Valley Community Council and

Eklutna, Inc. were also represented by one member.¹¹

Following development of three initial land use alternatives, an areawide community meeting was held to present the alternatives to the public and obtain an expression of preference. Survey forms were also included to allow residents time to review the alternatives and related evaluations. Many of the survey forms were returned later by mail.

The responses obtained as a result of the areawide meeting along with continued input from the Citizen Advisory Committee were utilized in the development of the Comprehensive Plan.

¹¹Citizen Advisory Committee membership was composed of the following:

Eagle River Valley	--Len Kelley
	Abbe Dunning
Eagle River-----	Bob Johnson
	Harry Witman
Chugiak-----	Don Ryan
	Patricia Nysewander
Birchwood-----	Sandy Larson
	Steve Crosby
Eklutna Valley-----	Dave Hanawalt
Eklutna, Inc.-----	Paul Carr, Consultant

COMPREHENSIVE PLAN

Introduction

This Comprehensive Plan has been prepared to provide community residents and public officials with a policy document to guide decisions regarding the future development of the Eagle River-Chugiak-Eklutna area. As a policy document, it is intended to outline the general strategies for both land use development and the installation of major public facilities and services, including water, sewerage, transportation, parks, and schools. In addition it also outlines basic strategies for the conservation and protection of certain natural resources and environmentally sensitive areas. The need for such a document is quite evident in light of the rapid growth that is taking place and the need for additional facilities and services.

This Plan is the result of the sequence of plan development activities described in the previous section. It has also evolved from the efforts of others who worked toward the development of a Comprehensive Plan during the past several years.

Much has been said about the lack of any kind of consensus among the Eagle River-Chugiak-Eklutna area residents over the issue of development. This Plan has attempted to forge a consensus based on the acceptance of the variety of needs, values, and aspirations that were identified throughout the area. The Plan recognizes the need for additional land for commercial and industrial development. The plan anticipates the need for a mix of future housing types and population densities reflecting urban to rural values. Also, this plan includes environmental and public facility recommendations to acknowledge the special and sometimes severe physical limitations imposed upon development, and to ensure that a proper facility support system will exist to maintain the expected population patterns and densities.

Environmental Recommendations

Because of the geophysical history and setting of the Eagle River-Chugiak-Eklutna area, a variety of environmentally sensitive areas exist. The following areas were identified as environmentally sensitive:

- * Salt Water Marshes
- * Critical Wildlife Habitats
- * Fresh Water Marshes, Wetlands
- * Floodplains
- * Unstable Soils

- * Historical and Archeological Sites
- * Tidal Creeks and Flats

These areas were identified under the "Preservation" classification of the Coastal Management Program covering the Eagle River-Chugiak-Eklutna area.

Most of the environmentally-sensitive lands in the Eagle River-Chugiak-Eklutna area are lakes, coastal and riverine floodplains, marshes, and freshwater wetlands. The environmentally sensitive lands are located throughout the entire area. However, the area where they are most pronounced is in Eagle River Valley. The valley area which is identified "Preservation" under the CZM program has a host of public values as well as physical constraints. The three most important public values are potential potable water supply, recreation, and critical wildlife habitat area. Future ownership of most of the environmentally sensitive lands within the valley will most likely be with Eklutna, Inc. If it is determined that a dam and reservoir system is not to be established, some of those lands may be developable, given the physical limitations. Public values would then be focused on access to and protection of the ecological characteristics of the river and floodplain. (A major portion of Eagle River Valley is being identified as a Resource Assessment Area. Specific studies are being undertaken to more accurately determine the extent of resources and land development constraints. Such studies include a water resources development study and floodplain mapping project).

Within the Eagle River-Chugiak-Eklutna area as a whole, each of the preservation areas has been identified as marginal. Certain of these areas--including critical wildlife habitats, floodways, salt water marshes, and coastal marsh areas--are sufficiently unique and/or ecologically unstable to require that development should not occur, or should be limited to open space or passive recreational uses. Selected other areas could, however, be developed under certain conditions. Areas now designated as marginal under the categories of floodplains and wetland/marsh areas could be developed at limited rural residential densities (1 to 5 DU per acre) and under Planned Unit Development (PUD) densities. The latter could be developed on more stable, geologically suited ground immediately adjacent to wetland areas. In areas where development would occur on lands of questionable suitability, a specific site analysis examining soils, slope, and hydrology should be required. In addition, this analysis, if development is to occur on a wetland area, should identify remedial measures to maintain the original hydrologic cycle.

Hazardous lands also exist in certain areas that have not yet been identified. In particular are avalanche and wind hazard areas. A geotechnical hazards assessment study is currently in progress which will identify such hazards. Once identified, appropriate measures should be taken to mitigate their potential hazard to public safety.

Over nine thousand acres of private or Eklutna-selected lands have been identified as either alpine or with slopes greater than 25%. Most of these are in mountainous terrain, primarily in the valleys of upper Eagle River, South Fork, Peters Creek, and Eklutna River. These lands include private in-holdings within Chugach State Park as well as lands adjacent to the park. Though not considered marginal (identified as marginal lands within the "Conservation" CZM classification), these lands do pose certain types of physical constraints and relate concerns for environmental quality. Such issues as glaciation, erosion, slope stability, avalanche hazard, watershed protection, and soil percolation should be adequately addressed prior to any development. The Anchorage Municipal Planning Department is currently developing an Alpine and Slope Development Ordinance to deal with the increasing activity of development in mountainous terrain. The intent of the ordinance is to allow development to occur in accordance with the carrying capacity, with assurance that public values and safety will be preserved. These lands, which include the private in-holdings, should be managed under such an ordinance with development allowed accordingly.

Land Use Plan

The development of the Comprehensive Plan's land use recommendations are based on input, assumptions, and analyses previously described in the plan development process. The three initial alternative land use plans represented policies for densities and locations of different uses. Each alternative also gave different policy direction on the extent and location of facility development, in addition to establishing community character. The public response to the alternatives, the continued evaluation of demographic and economic trends, and analyses of constraints has resulted with the development of the proposed land use plan.

The land use plan is characterized by four basic policy areas. They are:

- * Urban/Suburban Development Area
- * Rural Development Areas
- * Special Study Rural Development Area
- * Resource Protection Areas

Urban/Suburban Development Area: This area is centered on the community of Eagle River. The urban/suburban area expands from the existing community to encompass land as far south as the Eagle River floodplain; as far east as Mile 3 on Eagle River Road; as far north as Fire Lake; and as far west as the Alaska Railroad south of Fire Creek. The urban/suburban development area contains the major commercial (employment) center and highest concentration of population. Densities range from 3-30 dwelling units per acre.

Major public investments in this area will include facilities for sewer and water.

Rural Development Areas: Rural development areas are located from Fire Lake to the Peters Creek; east of the New Glenn Highway between the Peters Creek and the Eklutna River, on the south side of the Eagle River off of Hiland Drive, and on the north side of Eagle River east of Mile 3. These areas are suitable for development, but are retained at a low density level of one to two dwelling units per acre. Reasons for low density include community desires, existing subdivision patterns, and lack of water sources that would allow higher densities. No public investments for sewer and water are planned for these areas. Sewer and water will, for the most, be provided with individual on-site septic systems and wells.

Special Study Rural Development Area: This area encompasses approximately 3,000 acres of land. It is located northwest of the New Glenn Highway between Peters Creek and Eklutna. At Eklutna, it also includes lands east of the highway. Almost all of the land within this area is undeveloped. Exceptions are lands along Peters Creek and the Old Glenn Highway, and the Eklutna village. Land within the special study rural development area represents a large, relatively unplatted area.

This rural development area is earmarked as a special study area. There is currently a lack of sufficient ground water supply and soils data to determine whether or not higher densities are feasible. The Municipality of Anchorage is currently making arrangements for sewerage and hydrology studies for this area.

Following the completion of these studies, a better determination of the ultimate land use and densities will be made. If there is a need and demand for additional housing and an adequate water supply is available to accommodate it, development should take place within an integrated sewer and water management system.

The special studies will not be completed for approximately three to five years. In the interim, there will be a demand for development which will require the establishment of zoning and platting guidelines. Like the rural development area, development in this area will be retained at low densities. Initial density ranges to be considered at the time of areawide zoning may range from two dwelling units per acre to one dwelling unit per five acres. If a land holder desires to develop at a higher density than what the initial zoning calls for, but prior to the completion of the Municipal studies, he will have to provide the necessary data from which a determination can be made that a greater density will be feasible.

Resource Protection Areas: Resource protection areas are those lands previously identified as being environmentally-sensitive or marginal. The proposed land use plan designates the environmentally-sensitive lands as marginal. Alpine and slope affected lands are designated for residential use, the density of which would be established by the proposed Alpine and Slope Development Ordinance. Policies and descriptions relating to these areas were previously identified under Environmental Recommendations (Section 3.02, page 30).

Within the planning period of this study, the major impacts of future growth in the Eagle River-Chugiak-Eklutna area will focus on the expansion of residential land use. The importance of this area in providing space for rural to suburban housing will become more evident as remaining suitable lands in the south Anchorage area become utilized. The Eagle River-Chugiak-Eklutna area has approximately 10,000 acres of suitable land. Based upon the year 2,000 population projections, it is anticipated that about 60% of the suitable land will be developed within that period of time--assuming residential densities are in accordance with this land use plan.¹² Besides preserving rural lifestyles in areas where they are highly favored, this rate of land consumption will also allow for a healthy real estate market without causing unnecessary escalation in land costs resulting from land shortages.

In regard to the residential element the land use plan allows for a mixture of housing types and densities. Currently, multi-family housing in the Eagle River area accounts for only 15% of the total housing stock. This plan anticipates a proportionately greater share of

¹²Assumes ultimate density of 3-5 dwellings per acre in Special Study Rural Development Area.

multi-family housing--about 18%. This plan still recognizes that the greatest demand for housing in this area--coupled with the desires of the residents--will be for single family homes. However, the plan also recognizes the growing trend toward more multi-family dwelling units.

Commercially, this plan anticipates the Eagle River-Chugiak-Eklutna area will develop as a moderately-balanced community with about 21% of the population employed locally. It would be unreasonable to assume that within the time period being planned, the community will develop a region-serving economic base comparable to Anchorage, where 48% of the population is employed locally. However, it would be just as unreasonable to assume that major community employment would remain at its current level of 7% of the population. As the population continues to grow, so will the need and market for additional business and commercial services. In order to develop a moderately balanced employment base, sufficient lands will have to be available to accommodate anticipated commercial and industrial activity. Consequently, commercial and industrial land acreage requirements were calculated based on certain assumptions regarding total population/employee ratios and land use intensity factors (see Table 4). It is important to note that the saturation population was used in the calculations rather than the twenty-year design population projection. Thus, additional acreage was calculated to assure an adequate amount would be available. The commercial and industrial land acreages are reflected on the land use map in locations and configurations that are most compatible with surrounding land uses, and are most desirable to residents of the surrounding area.

The location and configuration of commercial land is a combination of both strip commercial and cluster commercial land use. This plan recognizes a legitimate need for both types of development. The major commercial area is envisioned to be "downtown" Eagle River--basically the area between the Old and New Glenn Highways, and between North Eagle River Loop Road and Artillery Road. In the development of the area, diligent forethought should be given to a well-designed vehicular and pedestrian circulation system. Also, measures should be considered to prevent unnecessary gaudiness. Sign and building materials have considerable indirect influence over the quality of commercial areas. Action should be taken to develop ways to promote the orderly development and enhancement of the commercial area. Much of the visual character of the community will be determined by the development and use of the commercial areas.

TABLE 4

COMMERCIAL & INDUSTRIAL ACREAGE CALCULATIONS

TOTAL EAGLE RIVER-CHUGIAK-EKLUTNA SATURATION

POPULATION:¹ 72,363

Eagle River-Serving Saturation Population:² 57,061

Employment is 21% of population = 11,983

Industrial related employees = 1,474

Commercial related employees = 10,509

Land Use intensity factors:

Industrial = .087 acres per employee

Commercial = .048 acres per employee

1,474 x .087 = 128 acres industrial

10,509 x .048 = 504 acres commercial

Rural-Serving Saturation Population:³ 15,302

Employment is 7% of population = 1,071

Industrial related employees = 72

Commercial related employees = 999

Land Use intensity factors:

Industrial = .087 acres per employee

Commercial = .147 acres per employee

72 x .087 = 6 acres industrial

999 x .147 = 147 acres commercial

¹Excludes 3000 acres proposed for special study rural development area in Peters Creek and Eklutna area.

²Those areas served by commercial and industrial use in urban/suburban Eagle River, and Eagle River Valley.

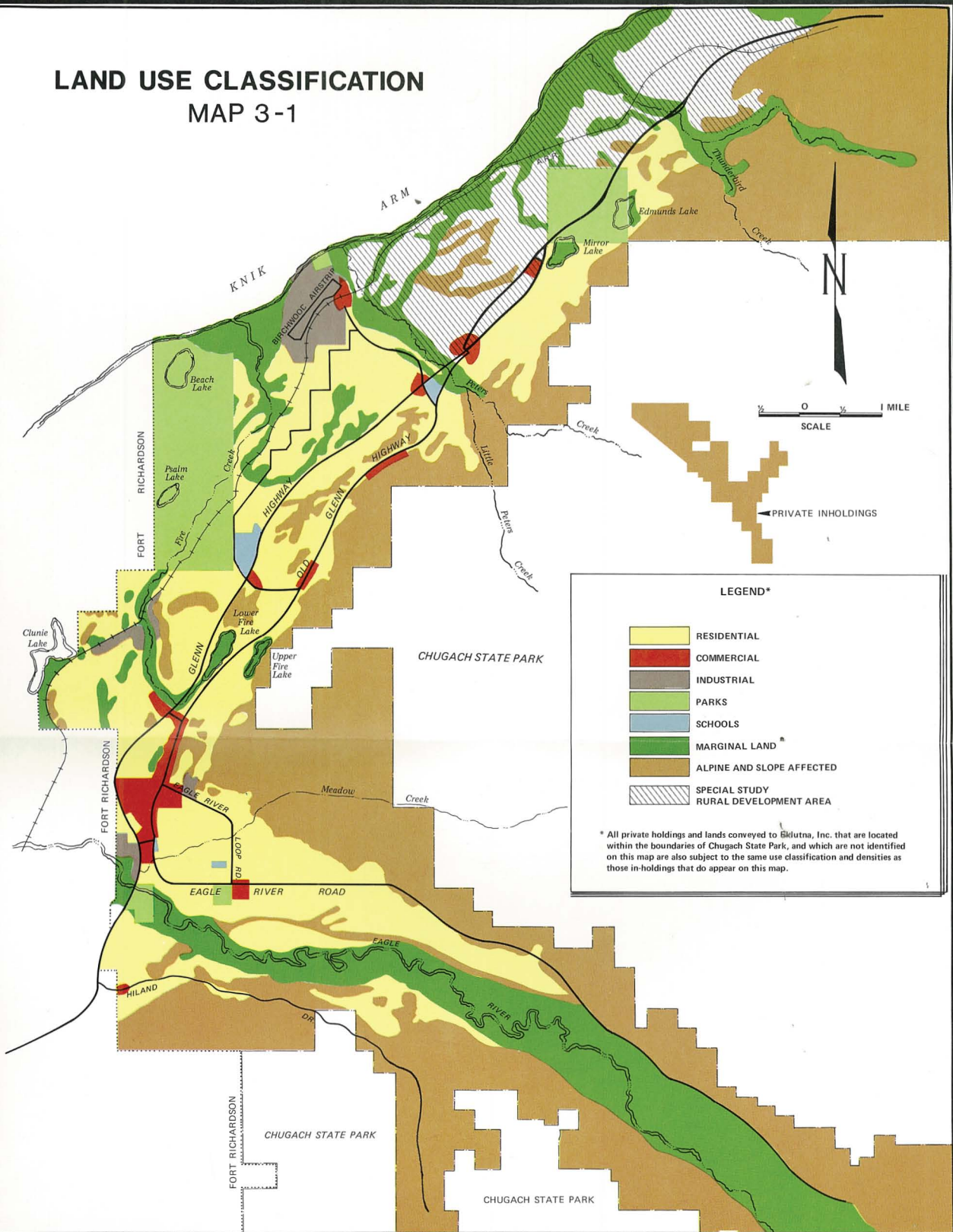
³Those areas served by commercial and industrial use in rural areas north of Eagle River, excluding special study rural development area.

Commercial acres outside downtown Eagle River are clustered near major roadway intersections, or in limited strips. They would primarily be local-serving with some additional business being generated from major thru-way traffic.

To date, there has been very little industrial activity in the Eagle River-Chugiak-Eklutna area--somewhat of a reflection of the lack of industry in the Anchorage Municipality as a whole. However, lands are made available for future industrial use at four different sites. Two of the sites are in Eagle River, a third is along the Alaska Railroad west of Fire Lake, and the fourth is at Birchwood. Fifty-four acres are located on the west side of the Glenn Highway with access from Artillery Road; fifty-six acres are located on the north side of Eagle River Loop Road one-fourth mile east of the Old Glenn Highway; approximately three hundred acres are located along the Alaska Railroad west of the Fire lake; and two hundred and sixty-three acres are located at Birchwood Airport. These four sites have been identified for their locational features that are conducive to industry. These sites have sufficient quantities of land to serve any potential major single user, or to establish an industrial park of several different users. The Artillery Road, Alaska Railroad, and Birchwood sites have immediate access to major transportation systems. The Artillery Road site has immediate access to the New Glenn Highway; Alaska Railroad site access to the railroad; and the Birchwood site is adjacent to both the Alaska Railroad and Birchwood Airport. The Eagle River Loop Road site is located near the Eagle River commercial district and would be a part of that community's employment center.

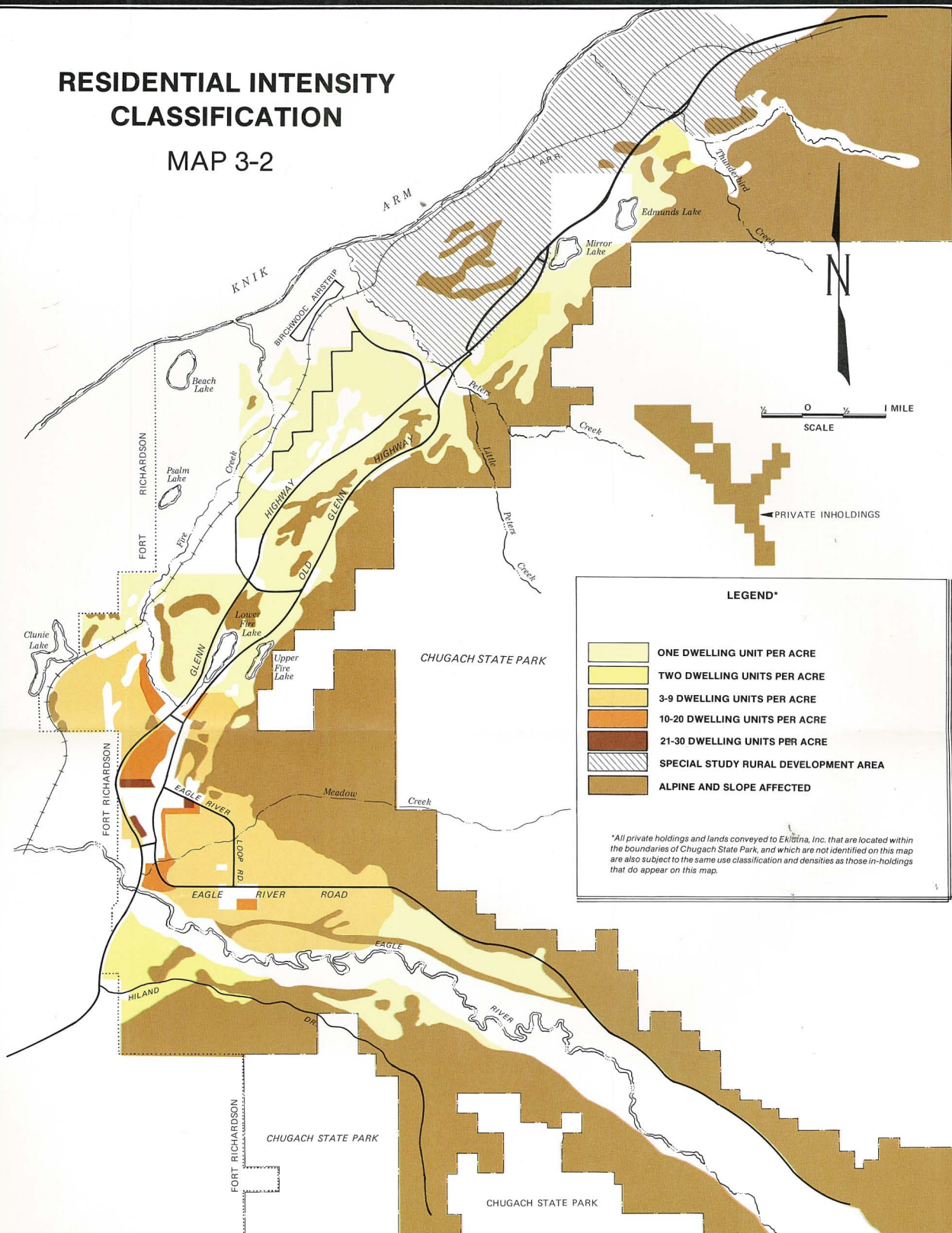
An issue of particular concern is the effect the Comprehensive Land Use Plan recommendations will have on existing businesses located along the Old Glenn Highway at the time of implementing areawide zoning. Between Eagle River and Peters Creek, a number of commercial and industrial activities currently exist. Because of their random location along the Old Glenn Highway, a number of these businesses are located outside areas that are designated for commercial and industrial use. At the time of areawide zoning, three basic policy alternatives will be available to deal with them. One policy alternative would be to grant them outright commercial or industrial zoning--B-1, B-3, I-1, or I-2. This alternative, however, would not give adequate protection from detrimental impacts to surrounding properties. It would also tend to encourage strip commercial land use. This alternative is not widely supported by area residents.

LAND USE CLASSIFICATION MAP 3-1



RESIDENTIAL INTENSITY CLASSIFICATION

MAP 3-2



A second policy alternative would be to zone them residential in accordance with the land use plan, thus allowing the business activities to continue only under grandfather rights. Grandfathering existing businesses is not considered a desirable alternative, as it tends to lead toward blight. Grandfather rights are also not considered desirable by the area residents.

The third policy alternative would be to grant special limitation zoning to the business properties in order to allow for a limited range of commercial/industrial uses. This policy alternative would allow the existing businesses to continue to operate and expand legitimately, while protecting the surrounding properties from adverse impacts or encroachments. This policy alternative also has a broader base of community support than the previous two alternatives.

It is intended that the following procedure will be established at the time of areawide zoning. With the exclusion of gravel extraction operations (an interim use that has already been granted conditional approval with an amortization schedule), all other businesses currently in legitimate operation along the Old Glenn Highway which are located outside areas designated on the land use map for commercial use, and which do not meet the conditions of a home occupation will be zoned commercial or industrial with special limitations to allow a limited range of uses, the details of which will be established at the time of zoning. It is recognized that grandfather rights are not a desirable alternative. It is recognized that extensive strip commercial development along the Old Glenn Highway is not desirable. However, when considering the rural nature of the area and the topographical features along the Old Glenn Highway, the continuance of existing businesses at their random locations should not be adversely impacting the area's rural growth, nor should they lead to extensive strip commercial development.

Public Facilities and Services

To support the growth of the Eagle River-Chugiak-Eklutna area, provision must be made for additional schools, parks, roads, sewers, and water facilities. To the extent practicable, Municipal Trust Lands and lands received by the Municipality under the Municipal Land Entitlement Act should be used--and reserved--for public facility purposes. Also, lands made available to the Municipality for specific public purposes through a negotiated agreement with Eklutna should also be utilized to the extent practicable.

Schools: If the current projected population growth rate and ratio of students to family size are maintained, the following additional school facilities will be needed in the Eagle River-Chugiak-Eklutna area by the year 2000:

- 12 elementary schools
- 2 Junior high schools
- 1 senior high school

Under a recent Agreement of Compromise and Settlement with Eklutna, Inc., the Municipality of Anchorage will receive sufficient lands for four additional future elementary schools. Lands are located in Eagle River Valley, North Eagle River (Fire Lake), Birchwood, and Peters Creek. As stated just previously, these lands along with lands to be received under the Municipal Land Entitlement Act should, to the extent practical, be utilized.

Parks and Recreation: A major attraction of the Eagle River-Chugiak-Eklutna area is recreation. The area is gifted with an abundance of outdoor recreational resources.

Many of these resources have already been preserved in parks--most significant are Chugach State Park, and Edmonds Lake and Beach Lake Regional Parks. For the most part, these parks have little access to them and remain undeveloped. Open space resources are also identified in certain resource protection areas. Most notable are floodplains, wetlands, and marshes. Again however, access remains a problem. There will also be an increasing need for smaller community parks, neighborhood parks and playgrounds in the urban/suburban development area. At a saturation density of 48,461 people, the latter area would require approximately 250 acres of such recreational land.¹³

Existing recreational facilities are relatively few. They are currently provided by area schools and private organizations. Maintenance and supervision is mostly volunteer or nonexistent. As the area grows in population the need for developed facilities will grow, along with their operation and maintenance.

¹³Computations based on National Park, Recreation, and Open Space Standards, which are found in Parks, Recreation and Open Space: Standards, Policies and Guidelines for Development. Greater Anchorage Area Borough, September, 1972.

The Eagle River-Chugiak-Eklutna area's current recreation problems are lack of adequate access to existing park areas, lack of developed recreational facilities, and lack of adequate operation and maintenance. This Plan recommends the joining of the Eagle River-Chugiak-Eklutna area with the Anchorage Parks and Recreation Service Area. By so doing, park planning, acquisition, designing, facilities construction, and operation and maintenance would be available to develop and maintain the recreational resources in the area.

Specific park-recreation programs recommended are the establishment of greenbelt programs with developed multi-use trail systems for bicycling and cross-country skiing. Greenbelt programs are proposed for Eagle River, Fire Creek, and Peters Creek.

The greenbelt programs have been given a substantial boost as a result of a negotiated Agreement of Compromise and Settlement between the Municipality of Anchorage and Eklutna, Inc. According to the agreement, Eklutna, Inc. has provided open space easements to the Municipality of Anchorage for the purposes of retaining the land within the easements in their natural state and allowing the Municipality to enter upon them to construct trails for non-motorized public recreation.

The Peters Creek greenbelt would extend from the mouth of the creek at Knik Arm to the Chugach State Park boundary. Under the agreement with Eklutna, Inc., 60% of the greenbelt area from the mouth of the creek to the New Glenn Highway is available.

The Fire Creek greenbelt would extend from Beach Lake Regional Park to Lower Fire lake. Under the agreement, 100% of the greenbelt area is available from the Glenn Highway to Beach Lake Regional Park.

The Eagle River greenbelt would extend from Knik Arm up Eagle River Valley to the boundary of Chugach State Park, a distance of approximately 15 miles. Included in the agreement with Eklutna, Inc. is an easement for a greenbelt extension from the campground on Eagle River up to the school site located next to the Lion's Park.¹⁴ The precise location and configuration of the

¹⁴The site for an elementary school in Eagle River Valley has not yet been selected. However, in another section of the agreement with Eklutna, Inc., they have agreed to make land adjacent to Lions Park available for a future elementary school. Thus, it is one of five sites being considered.

Eagle River greenbelt will be determined at a future date, and will be based upon the results of specific studies within the Eagle River Resource Assessment Area regarding the Eagle River floodplain and water resource development.

The establishment of these greenbelts will provide the basic network for an areawide trail system. Linking the greenbelt trails will be the Glenn Highway bike trail, thus providing for an extensive off-road trail system. In addition, the greenbelts will be of great public value in helping to preserve the water quality of the streams for the use of fish and wildlife.

Before any greenbelt easements or land acquisitions are made, the area should be included within a Parks and Recreation Service Area. The advantages of having a service area extend beyond the acquisitions for the greenbelts. Acquisition of land for neighborhood parks and playgrounds will become important as future development occurs. Reliance upon private organizations to provide the land will not suffice. Funding for development of greenbelt trails and other park facilities will require, in many instances, sale of general obligation bonds. Mill levy impact that would occur with expansion of the Anchorage Park and Recreation Service Area to this area is not considered to be too significant. Taxes paid for parks and recreation services by a homeowner with \$75,000 worth of taxable property in Anchorage amounted to \$13.50 more than a comparable homeowner in Eagle River in 1978. Added costs of service area expansion are not anticipated to alter significantly.

Transportation: Revision to the Official Street and Highways Plan have recently been made. The Old Glenn Highway between the north and south access roads to Eagle River is designated as a major arterial. Eagle River Road, Eagle River Loop Road, the Old Glenn Highway north of the North Access to Eagle River, and the Birchwood Airport Access Road are designated as minor arterials. These revisions are compatible with the land use plan.

Further expansion of Birchwood Airport is quite limited, although space exists to accommodate tie-downs for additional planes. The ultimate utilization of Birchwood Airport is still somewhat unknown, pending a final decision on the future of Merrill Field in Anchorage. However, this plan supports the use of Birchwood Airport as a General Utility and Basic Transport Airport to serve both locally-based and transient air traffic.

Sewer-Water Facilities: Public sewer facilities will be needed to serve the urban/suburban development in Eagle River area, and possibly in the Peters Creek-Eklutna area, which is designated for special study. The type and extent of sewerage for the latter area will not be known until sewer and water studies are carried out and a determination of density is made.

There are currently plans to up-grade the sewer treatment plant in Eagle River. No problems are foreseen at the treatment plant to handle wastes generated from a saturation population of 52,000 people except the need for additional land to be cultivated for sludge disposal. Needed additions to the plant facility could be made with minimal problems. Extension of the collector system is also planned throughout the Eagle River community to all areas designated with densities of three dwelling units per acre or greater.

Probably the single greatest need for area development is availability of water. Further development in the rural and resource protection areas will rely on ground water wells to serve individual or small groups of dwellings. Ultimate residential densities in the special study area will to a very large extent depend on the availability of water--either from ground water wells or a surficial source (Eklutna Power Plant diversion).

The extensive development of the urban/suburban Eagle River community is contingent upon a fully integrated water system capable of adequate storage, transmission, and distribution to satisfy both domestic and fire flow demands.

There are currently three possible forms of ownership and management of an integrated water utility for Eagle River. These are a municipal utility, a privately-owned public utility, and a cooperative. Of these three, a Municipal utility is considered to be the form with the greatest opportunity to succeed in providing the services and improvements that will be necessary. The basis for this conclusion is that a Municipal utility will be able to obtain funding for the necessary capital improvements through the sale of low interest-bearing bonds and government grants while the other two utility concepts will be limited primarily to the commercial money market. Thus, a Municipal utility would be able to obtain funding much easier and in greater amounts than the other alternatives.

Any initial effort to establish a community water system in Eagle River must come from within the community itself. Without grass-roots support it is doubtful that the Anchorage Water Utility will pursue initiation of water service in the area.

PLAN IMPLEMENTATION AND REVIEW PROCEDURES

Introduction

This plan represents a beginning in establishing the policy framework to guide development in the Eagle River-Chugiak-Eklutna area. It provides a conceptual approach to establishing the development controls now lacking for this area. The plan should not be viewed as a device for limiting the future development of the area, but rather, as a mechanism to ensure the enhancement of the area as it continues to grow. Both the design of implementation measures and the adoption of this plan will depend heavily on the involvement and support of the area residents.

It is intended that this plan will be implemented through a mix of regulatory controls and land management programs. The regulatory controls and management programs described herein are designed to support and carry out the recommendations of this plan. As such, adoption of the plan will specify the policy of the Municipality as to the type and levels of controls to apply within the Eagle River-Chugiak-Eklutna area. These programs are to be those administered by the Municipality; other agencies exercise land management controls, but in view of jurisdictional considerations are not described herein. Nonetheless, adoption of this plan will constitute the Municipality's policy as to how State and Federal land management systems can best be applied in this area.

Regulatory Controls

The following regulatory controls are recommended for implementation:

- * Areawide Zoning
- * Alpine Slope Development Zone Ordinance

Areawide Zoning: There is currently mixed support for the use of zoning areawide. However, indications are that it is needed now. Subdivision activity is taking place throughout the entire area with no guidance on residential lot size. Implementing a policy on the location and configuration of commercial and industrial use will also require zoning. Otherwise, additional non-conformities will create more conflicts with intended land use patterns and densities.

Zoning is being recommended over other types of land use controls because of the minimum amount of fiscal/institutional impacts that would occur as compared with other forms of control. A zoning ordinance

structure already exists which is familiar to both the general public and the municipal officials responsible for implementing it. In light of the fiscal constraints placed on our municipal government, the time and manpower that would be necessary in establishing and implementing other types of regulatory land use controls is not available.

Before implementing areawide zoning, however, an additional land use classification should be adopted. The additional classification is the Alpine and Slope Development Zone.

Alpine & Slope Development Zone: As indicated earlier, this use classification is intended to deal primarily with development in mountainous areas. The current R-6, R-8, and R-9 zones do not permit the flexibility that should be allowed and is needed for development in areas with varying and unique characteristics. Adoption of this use classification will allow more design and density flexibility while assuring better protection and enhancement of the physical environment.

Management Programs

A number of additional programs are recommended for adoption in the Eagle River-Chugiak-Eklutna area. They are:

- * Capital Improvement Program
- * Areawide Parks and Recreation Service Area
- * Roads and Drainage Service Area for Urban/Suburban Development Area
- * Coastal Zone Management
- * Municipal Land Selections
- * Agreement of Compromise and Settlement with Eklutna, Inc.

Capital Improvement Program: The Anchorage Municipal Capital Improvement Program is a planning and budgeting program that outlines the timing, location and cost of placement of public facilities needed to accommodate area development for a period of six years. Capital projects are generally expensive, and once constructed are permanently fixed. Many capital projects - particularly utilities and transportation - are determinants of development patterns. Consequently, it is important that capital improvement project decisions are based upon long-range planning. It is the intent of the Eagle River-Chugiak-Eklutna Comprehensive Plan that all capital improvement projects comply with the Land Use Classification and Residential Intensity maps unless findings of fact are provided that justify non-compliance.

Areawide Parks and Recreation Service Area: The ability to acquire, develop, and maintain park and recreational resources in the Eagle River-Chugiak-Eklutna area will depend on the establishment of full service area status. By so doing, park planning, acquisition, designing, facilities construction, and operations and maintenance will be available.

Although some of these functions can be done under the existing limited service area funding ordinance, specific park programs such as acquisitions for greenbelts, community and neighborhood parks, and playgrounds will be unattainable unless the present service area funding capabilities are expanded. The most efficient way is to join the Eagle River-Chugiak-Eklutna area with the Anchorage Parks and Recreation Service Area.

Road and Drainage Service Area for Urban/Suburban Development Area: The maintenance of streets and surface runoff within areas developed at urban and suburban intensities is too great a burden for individual property owners. Drainage planning and control is guided by natural features which do not follow subdivision and development boundaries. Development in one location usually affects streets and drainage in other areas. The implementation of a Roads and Drainage Service Area to provide for a unified effort in maintenance of streets and surface runoff is a desirable feature in the more densely populated areas. Establishment of the service area will provide an efficient and safe road system with effective drainage control.

Coastal Zone Management Program: This program provides a framework for decision-making within the coastal zone on both natural and man-made features. It is intended that the land use recommendations contained in this Plan be a reflection of the preservation, conservation, and utilization classifications. Implementation of the District Coastal Management Program will then be accomplished by areawide zoning.

Municipal Land Selection: As allowed under State law, the Municipality may select a certain portion of State lands within its corporate boundaries. At the present time the Municipality of Anchorage has filed for portions of land within the Eagle River-Chugiak-Eklutna area. The adoption of this Plan will indicate the expression of the following Municipal policies:

- * Selected State lands not intended for public purposes are intended to be transferred into private use.

- * Selected State lands intended for public uses--including park, open space, school, and general community facilities--are to be retained and managed for such uses by the Municipality.
- * Selected State lands generally intended for private development, but containing an identified public use (including, but not limited to, open space, park, trail, or road), will: (1) if the public parcel occupies a specific site and exceeds one acre in size, be designated for private use exclusive of the subject parcel; or (2) if the public parcel is less than this acreage, be designated for private use. Under (1) above, the public parcel will be retained and managed by the Municipality. Under (2) above, the use involved in the affected parcel will either be dedicated to the Municipality or developed according to the recommendations made by the Municipal administration at the appropriate time.

Eklutna Agreement: The Municipality of Anchorage has entered into the Agreement of Compromise and Settlement with Eklutna, Inc. in order to resolve land title claims and disputes, and settle concerns over certain sections of the Alaska Native Claims Settlement Act. The agreement will allow the Municipality to obtain certain easements and land for specific public uses by lease for nominal fees. It is intended, to the extent practicable, that lands made available for public use under this agreement be utilized for such purposes as indicated in the agreement.

Further Studies

A number of studies need to be accomplished which will lead to actions that will also be necessary to implement this plan. They are listed as follows:

- * Water Resources Development and Management Study for Eagle River.
- * Sewerage and Hydrology Studies for the Peters Creek-Eklutna area.
- * Area Water Quality and Drainage Studies
- * Master Development Plan for Special Study Rural Development Area.
- * Geotechnical Hazards Assessment and Land Management Study.
- * Parking and Circulation Study for Downtown Eagle River.

It is hoped that the combination of the proposed regulatory controls, management programs and studies will

serve to guide development within the Eagle River-Eklutna area and protect the area's natural beauty and recreational potential. It should also be emphasized that these studies will lead to further management programs that will be necessary for the future development of the Eagle River area.

Plan Review Process

This plan is intended to represent a broad policy toward land development and management within the Eagle River-Chugiak-Eklutna area. As such, it was developed around a given set of community attitudes, and demographic data and trends. It is expected that these attitudes and trends may change over time. For this reason it is necessary to establish a process for plan review and re-evaluation. Because this review need not necessarily result in the complete revision of this plan, two levels of study are identified.

- * Plan Re-evaluation. A re-evaluation of the major trends and/or policies of the Eagle River-Chugiak-Eklutna Comprehensive Plan must occur five years from the time of its initial adoption. If major deviations from those anticipated in the initial plan are not identified, a complete revision of the Plan is not required. If major discrepancies are noted in this re-evaluation, a complete revision of the Plan is warranted.
- * Plan Revision. The Plan must be reviewed and revised at least once every ten years, preferably immediately following the census.

It is intended that the adoption of this plan will indicate that the above processes are to be followed in study re-evaluation, in order to ensure that the basic framework for decision-making on land management/use issues remains current.

APPENDIX

CALCULATIONS,
DESCRIPTORS,
AND
EVALUATIONS
OF
THE LAND USE ALTERNATIVES

Sub-Area Identification and Description: For the purposes of analysis, the Eagle River-Chugiak-Eklutna area is divided into seven sub-areas. Each sub-area is identified by a Transportation Analysis Zone (TAZ) number. TAZ sub-areas are briefly described as follows:

TAZ NO.:

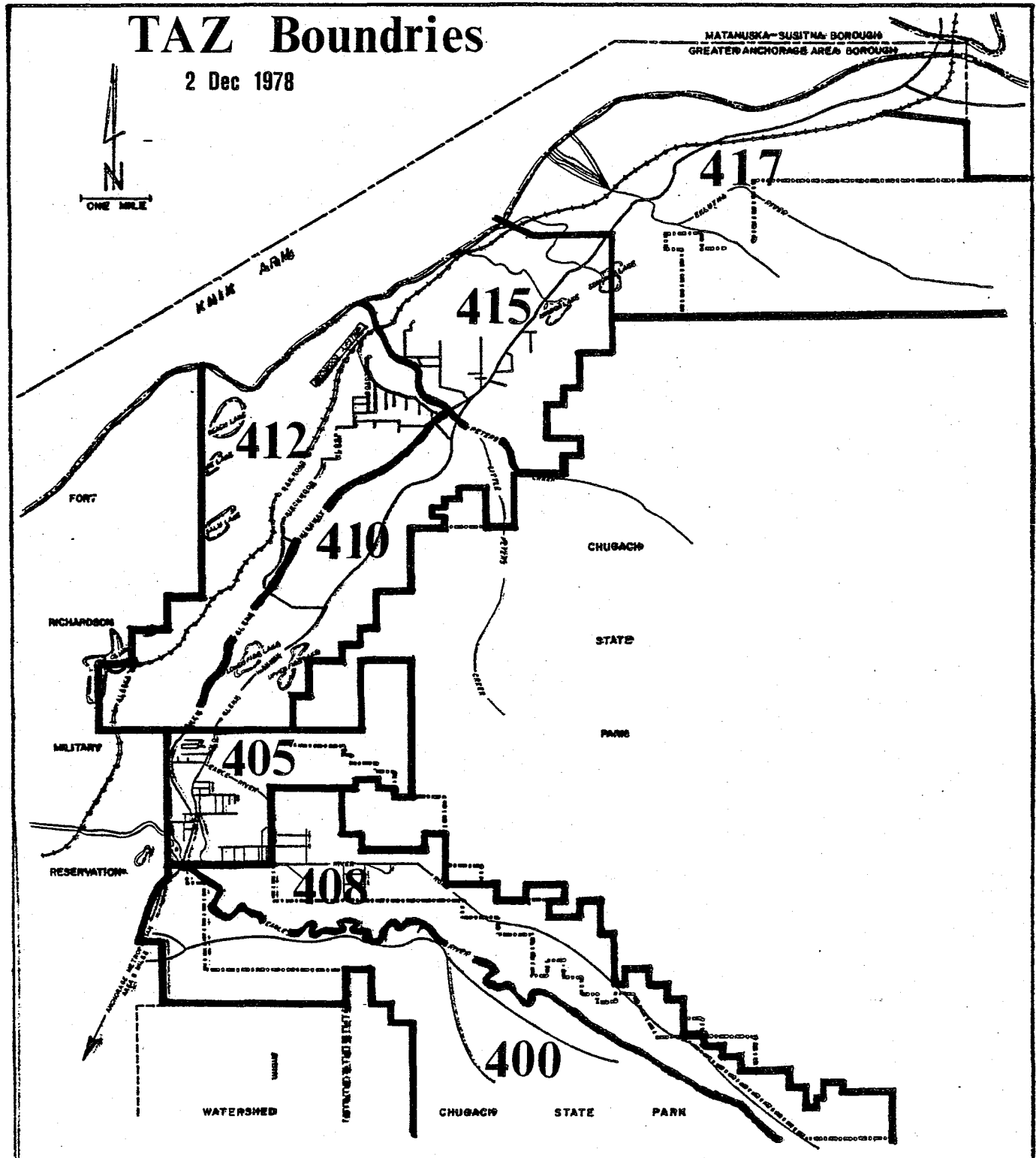
- 417 (Eklutna)-----generally the area north of Edmonds Lake Regional Park.
- 415 (Peters Creek)-----generally the area north of Peters Creek and south of Edmonds Lake Regional Park.
- 412 (Birchwood)-----generally the area on the west side of the New Glenn Highway between Peters Creek and Eagle River.
- 410 (Chugiak)-----generally the area on the east side of the New Glenn Highway between Peters Creek and Eagle River.
- 405 (Eagle River)-----generally the area of Eagle River proper west of Eagle River Loop Road and north of Eagle River Road.
- 408 (North Eagle River Valley)--generally the valley north of the river.
- 400 (South Eagle River Valley)--generally the area off Hiland Drive south of the river.

(See Map A-1 for a map of the TAZ boundaries)

The entire planning area was divided into these seven sub-areas so it would be possible to better ascertain the effects of the alternative land use plans.

Map A-1

EAGLE RIVER -EKL'JTNA SUBCOMMUNITY



Constraints and Assumptions

The development of the three land use alternatives is based upon a number of general assumptions and constraints. The assumptions and constraints are derived from economic/demographic analyses prepared by the Municipal Planning Department and from the Anchorage Coastal Zone Management Program.

The constraints were first identified and plotted onto a base map of the Eagle River-Chugiak-Eklutna area. The purpose was to identify available vacant lands that are suitable for development. It is the use of this type of land that will generate the growth and development of the Eagle River-Chugiak-Eklutna area. Excluded from this category were public-owned lands, developed lands, environmentally-sensitive lands, and vacant marginal lands. Included in the category of available vacant suitable land were all lands selected by Eklutna, Inc. that did not fall under any of the above exclusions. (The results are tabulated in Table A-1 and mapped in Map 2A-2. Explanations of the various land categories are also included within Table A-1. Map 2A-2 constitutes the base map from which the statistical analysis and evaluations of alternatives were made).

General assumptions that were made in the development of the three alternatives primarily concerned population and employment. Three alternative density levels were developed for the Eagle River-Chugiak-Eklutna area. Each of these alternatives reflect different considerations as to the residential nature of the area and the degree to which it should be developed. The different considerations formed in the alternatives are a response to the two major concepts identified by local residents in previous planning--that is "bedroom" community vs. "balanced" community, and strip commercial vs. cluster commercial development. Another consideration reflected in the various alternatives are design population projections.

Table A-1

LAND ACREAGES

TAZ No.	PLI Land ¹	Developed Land ²	Environ- mentally Sensitive Land ³	Vacant Marginal Land ⁴	Vacant Suitable Land ⁵
417	20	35	941	979 ⁶	1,645
415	583	666	1,127	752 ⁷	1,850
412	1,286	1,025	1,874	218	2,548
410	90	644	119	1,282	1,270
405	46	939	55	864 ⁸	740
408	62	840	3,066	2,612 ⁹	687
400	46	179	1,423	2,840 ¹⁰	1,368

- 1 Lands for major public and quasi-public institutional uses and major land reserve for public use.
- 2 Lands with uses or structures in current use.
- 3 Primarily wetlands and floodplains, lands within the CZM Preservation Classification
- 4 Privately owned and Eklutna-selected lands with slopes over 25%, to include alpine areas.
- 5 Privately-owned and Eklutna-selected lands.
- 6 Excludes all private in-holdings and Eklutna selections east of Sections 20, 29, and 32, including Sections 31 of T16N R1E.
- 7 Excludes Innsbruck in-holdings and Eklutna selections within Chugach State Park.
- 8 Excludes Swiss Alps and Eklutna selections in Section 5, T14N, R1W and Section 32, T15N, R1W that are within Chugach State Park.
- 9 Excludes private in-holdings, such as Paradise Haven.
- 10 Excludes private in-holdings on the south side of Eagle River Valley east of the South Fork drainage.

Based upon different growth rates of the greater Anchorage area's economy, three population levels for the year 2000 were identified for the Eagle River-Chugiak-Eklutna area. They are as follows:

<u>ALTERNATIVES</u>	<u>POPULATION (year 2000)</u>
Low Density	60,000
Moderate Density	76,000
High Density	95,000

The distinction between a "bedroom" community and a "balanced" community is based upon the amount and type of local employment. A "bedroom" community is one where the predominant portion of the employed residents commute to another area to their place of work. Such a community has a small commercial and industrial base that is primarily geared toward serving the local residents. A "balanced" community, on the other hand, is one that has a large commercial and industrial base so that the place of work for the greater portion of the employed residents remains within the community.

Presently, Eagle River-Chugiak-Eklutna area is a bedroom community. According to a recent survey, major employment is estimated at approximately 7% of the population. In comparisons, Anchorage is a balanced community where more accurate data indicates local employment totalling approximately 48% of the population.

The three alternative land use plans have projected employment bases as follows:

LOW DENSITY	6.7% of population
MODERATE DENSITY	20.6% of population
HIGH DENSITY	48% of population

The local employment alternatives range from the current status quo of the community to a community with employment characteristics similar to those found in Anchorage.

A key element in allowing the desired range of the local employment base to develop is the availability of an adequate amount of land for commercial and industrial use. The amount of acreage needed is in turn dependent upon the intensity of commercial and industrial use--i.e. the number of employees per acre. For example, in Anchorage within the Central Business District there are approximately 400 employees per acre, whereas in the Sand Lake area there are only 4 employees per acre. Thus, there is a much more intense use of commercial land in the CBD.

To determine the amount of commercial and industrial acreage needed in the three alternative land use plans, the following calculations were made.

Table A-2

LOW DENSITY ALTERNATIVE

Design Population Projection	-----60,000
Employment	-----6.7% of population
Land Use Intensity:	
Commercial	----- .147 acres per employee = 550*
Industrial	----- .087 acres per employee = <u>23.3*</u>
Total	573.3

MODERATE DENSITY ALTERNATIVE

Design Population Projections	-----76,000
Employment	-----20.6% of population
Land Use Intensity:	
Commercial	----- .069 acres per employee = 829*
Industrial	----- .087 acres per employee = <u>146.6*</u>
Total	975.6

HIGH DENSITY ALTERNATIVE

Design Population Projections	-----95,000
Employment	-----48% of population
Land Use Intensity:	
Commercial	----- .048 acres per employee = 1,193.5*
Industrial	----- .087 acres per employee = <u>507*</u>
Total	1,700.5

* .147 is comparable to commercial land use intensity in the North-South Muldoon area of Anchorage.

.069 is comparable to commercial land use intensity in the Seward Highway-36th Avenue area of Anchorage.

.048 is comparable to commercial land use intensity in the Fireweed Lane area of Anchorage.

.087 is comparable to industrial land use intensity in the south central part of Anchorage.

The general location and configuration of the industrial and commercial acreages were then plotted on the alternative land use maps.

Description of Alternatives

The three proposed alternatives attempt to carry out the recommendations of previous planning efforts that tried to identify a consensus of values and attitudes regarding community development in the Eagle River-Chugiak-Eklutna area. The different alternative land use patterns reflect the different attitudes that community residents have about development--from low to high residential density, to the location and configuration of commercial and industrial areas. In addition to expressed attitudes, alternative residential densities also took into consideration the growing percentage of multi-family dwellings in relation to the total housing stock. For various reasons, nationally and locally, more multi-family structures are being built. (Such structures are rental or owner-occupied apartments, townhouses, condominiums or mobile home parks.) Currently, multi-family dwellings make up 13% of the total housing stock in the Eagle River-Chugiak-Eklutna area. This percentage is expected to increase. Thus, the three alternatives indicate higher percentages, though recognizing that this area will continue to be predominantly a single-family-oriented area.

Saturation population, found in Table A-3, was calculated for the various alternative density configurations. The calculations in Table A-4 indicate the number and type of dwelling units that could occur with saturation development. Following are brief descriptions of three alternatives.

Urban Eagle River-Rural Chugiak (Low Density Alternative) (Map A-3)

This alternative most closely resembles the current pattern of development in the Eagle River area extrapolated ahead twenty years to an areawide population of 60,000. Residential patterns reflect an urbanized Eagle River community, with the area to the north retaining a more rural open space atmosphere, though at slightly higher densities than today. Community sewerage and water would be available throughout the urban Eagle River area. Community water systems would be available in some areas further north. Otherwise development would require on-site facilities.

This alternative reflects the bedroom community concept. Employment would primarily be local-serving. The major employment center would be downtown Eagle River off the Old Glenn Highway between the north and south Eagle River access roads. Other commercial areas would be clustered near key intersections throughout the area for resident's convenience. Industrial land would be located west of the New Glenn Highway off of Artillery Road and in the area of Birchwood Airport in quantity that is more than adequate to serve any anticipated industrial needs.

Table A-3

SATURATION POPULATION PROJECTIONS¹

LOW DENSITY				MODERATE DENSITY			HIGH DENSITY		
Taz NO.	Single Family	Multi- Family	Total	Single Family	Multi- Family	Total	Single Family	Multi- Family	Total
417	7,501	-	7,501	10,410	-	10,410	31,362	502	31,864
415	10,924	-	10,924	25,137	6,416	31,553	27,000	3,866	30,866
412	21,039	1,546	22,585	22,957	1,514	24,471	32,274	4,803	37,077
410	5,393	2,150	7,543	7,068	2,250	9,318	13,495	6,349	19,844
405	10,640	7,571	18,211	9,111	4,829	13,940	8,226	12,939	21,165
408	16,647	506	17,153	14,880	1,680	16,560	15,462	2,352	17,814
400	3,894	-	3,894	4,178	-	4,178	5,270	-	5,270
TOTAL	76,038	11,773	88,317	93,741	16,689	110,430	133,089	31,011	158,630
¹ Population projections include current population. Projections are derived from the number of dwelling units in each TAZ found in Table A-4. Persons per household are as follows: Single Family = 3.833 (1-9 d.u. per acre) Multiple Family = 3.2 (10-30 d.u. per acre)									
MULTI-FAMILY/SINGLE FAMILY RATIOS									
LOW DENSITY				16/84					
MODERATE DENSITY				26/74					
HIGH DENSITY				18/82					

Table A-4

NUMBER OF DWELLING UNITS

URBAN EAGLE RIVER - RURAL CHUGIAK

TAZ No.	1 d.u./ acre	2 d.u./ acre	3-9 d.u./ acre	10-20 d.u./ acre	21-30 d.u./ acre
417	761	1196	-	-	-
415	405	2245	-	-	-
412	829	2451	2209*	483*	-
410	160	743	504*	672*	-
405	-	-	2276*	1543*	823*
408	26	-	4317*	-	-
400	373	636	-	-	-
TOTAL	2554	7271	9306	2698	823

MODERATE DENSITY

TAZ No.	1 d.u./ acre	2 d.u./ acre	3-9 d.u./ acre	10-20 d.u./ acre	21-30 d.u./ acre
417	-	2716	-	-	-
415	347	491	5720*	2005*	-
412	-	3158	293*	473*	-
410	146	1207	491*	703*	-
405	-	-	2377*	1332*	2651*
408	26	-	3856*	525*	-
400	284	806	-	-	-
TOTAL	803	8378	12737	5038	2651

HIGH DENSITY

TAZ No.	1 d.u./ acre	2 d.u./ acre	3-9 d.u./ acre	10-20 d.u./ acre	21-30 d.u./ acre
417	-	-	8182*	157*	-
415	196	451	6397*	1208*	-
412	-	1805	6615*	1501*	-
410	223	224	3024*	913*	-
405	-	-	2016*	735*	2553*
408	-	52	3982*	-	-
400	-	75	-	-	-
TOTAL	419	2607	30216	4514	2553

¹ Includes 30% reduction in acreage for ROW, easements, streets, parks, schools and churches.

* Mean

Moderate Alternative (Map A-4)

This alternative represents a moderately-balanced community concept. Residentially, it is most distinguished from the lower density alternative in that Peters Creek would develop as a separate identifiable community. Eagle River would still remain as the major employment center, however, Peters Creek would be a secondary employment center. Public sewerage would be established to serve a higher density population in Peters Creek, primarily west of the Glenn Highway.

Employment would be greater than local-serving, though not enough to establish a self-contained employment base. In addition to core commercial areas in Eagle River and Peters Creek, commercial acreages would be partially clustered at specific locations, and located in strips along transportation corridors at convenient locations. Industrial locations remain as they would under the low density alternative.

High Density Alternative (Map A-5)

This alternative most resembles community development similar to that of Anchorage today. With 48% of the population employed in the Eagle River-Chugiak-Eklutna area, the community employment base would be balanced between local-serving and region-serving employment. Eagle River could still remain as the major employment center. However, extensive strip commercial development along the Old Glenn Highway and access roads would serve the outlying areas and provide additional commercial acreage that may not be available for some enterprises in Eagle River. Besides previously mentioned industrial lands, additional acreage would be available along the west side of the Alaska Railroad northeast of Clunie Lake.

Residentially, the entire area would be developed with public sewer and water to allow for the increased population. Exceptions would be in the east Peters Creek and Birchwood areas when development would inevitably require a community water system.

COST/FACILITY EVALUATION

Each of the three land use plans described previously represent different ways that the Eagle River-Chugiak-Eklutna community can develop to its ultimate potential. Each of these alternatives must also be supported by an infrastructure system of public services and facilities. Such facilities typically include schools, parks-playground, water, sewerage, and roads. These are all identified as being basic public facilities.

The number of facilities required and the associated costs of these facilities will vary, in response to different levels and patterns of urban development. It can be expected that, generally speaking, the number and costs of facilities will increase proportionately to the level of population growth. However, the relative, or per-unit, cost of these facilities does not increase proportionately with rises in density. Generally, the costs to the individual go down as density increases because public facilities are used more effectively.

The cost figures that follow are based on the ultimate development of the Eagle River-Chugiak-Eklutna area as proposed under each of the alternative land use plans. Costs are based on data derived from the Municipal Capital Improvement Program, and are given in 1978 prices. It must be emphasized that these price estimates are generalized, are not meant to be precise, but rather are intended to identify the major differences between the alternatives in terms of number of facilities needed and their requisite cost.

Table A-5 indicates the comparative number and costs of facilities for each of the three alternatives. As can be seen, the overall costs range between \$676 and \$1,097 million, with a mid-range figure of \$794 million. The important thing is not so much the total costs of these alternatives, as their relative cost differences. The mid-range alternative is considerably less expensive than the high-range alternative, as compared to the low-range alternative. It is also evident that the unit, or individual, costs are higher for a low-density pattern (\$6852 in the high density alternative). The latter reflects the increasing efficiency of public facility utilization at higher population densities.

Table A-6 indicates the cost/facility requirement for the middle-range alternative for various geographic areas within Eagle River-Chugiak-Eklutna. This table provides then, a spatial distribution of the need to and costs of public facility development. The preponderance of development appears to concentrate, in this alternative, in Transportation Zones 408, 412, and particularly, 415. This distribution reflects the land availability and recommended land use/land density patterns recommended in the moderate density alternative. Different patterns would exist for the two other alternatives, reflecting their land use/land density patterns.

Table A-5

COMPARATIVE COST OF ALTERNATIVES
(millions)

Facility	Alternative #1			Alternative #2			Alternative #3		
	Number	Total Cost	Unit Cost	Number	Total Cost	Unit Cost	Number	Total Cost	Unit Cost
<u>Schools</u>									
Elementary	29.2	137.6	1558	36.8	173.1	1568	52.9	243.7	1536
Junior H.S.	7.8	101.1	1144	9.8	127.1	1151	14.0	178.7	1127
Senior H.S.	7.8	101.1	1144	9.8	127.1	1151	14.0	178.7	1127
<u>Parks-Recreation</u>									
Neighborhood	17.6	7.1	80.4	22.1	8.9	80.6	28.8	12.4	78
Community	3.5	7.1	80.4	4.4	8.9	80.6	5.6	12.4	78
Playgrounds	17.6	4.2	47.6	22.1	5.3	48.0	28.8	7.5	47
<u>Water</u>	-	84.8	960	-	98.8	895	-	126.5	797
<u>Sewer</u>	-	86.3	977	-	83.3	754	-	119.7	755
<u>Roads (Paved)</u>	-	147.0	1664	-	161.0	1458	-	207.4	1307
Totals		676.3	7655		793.5	7186		1,087.0	6852

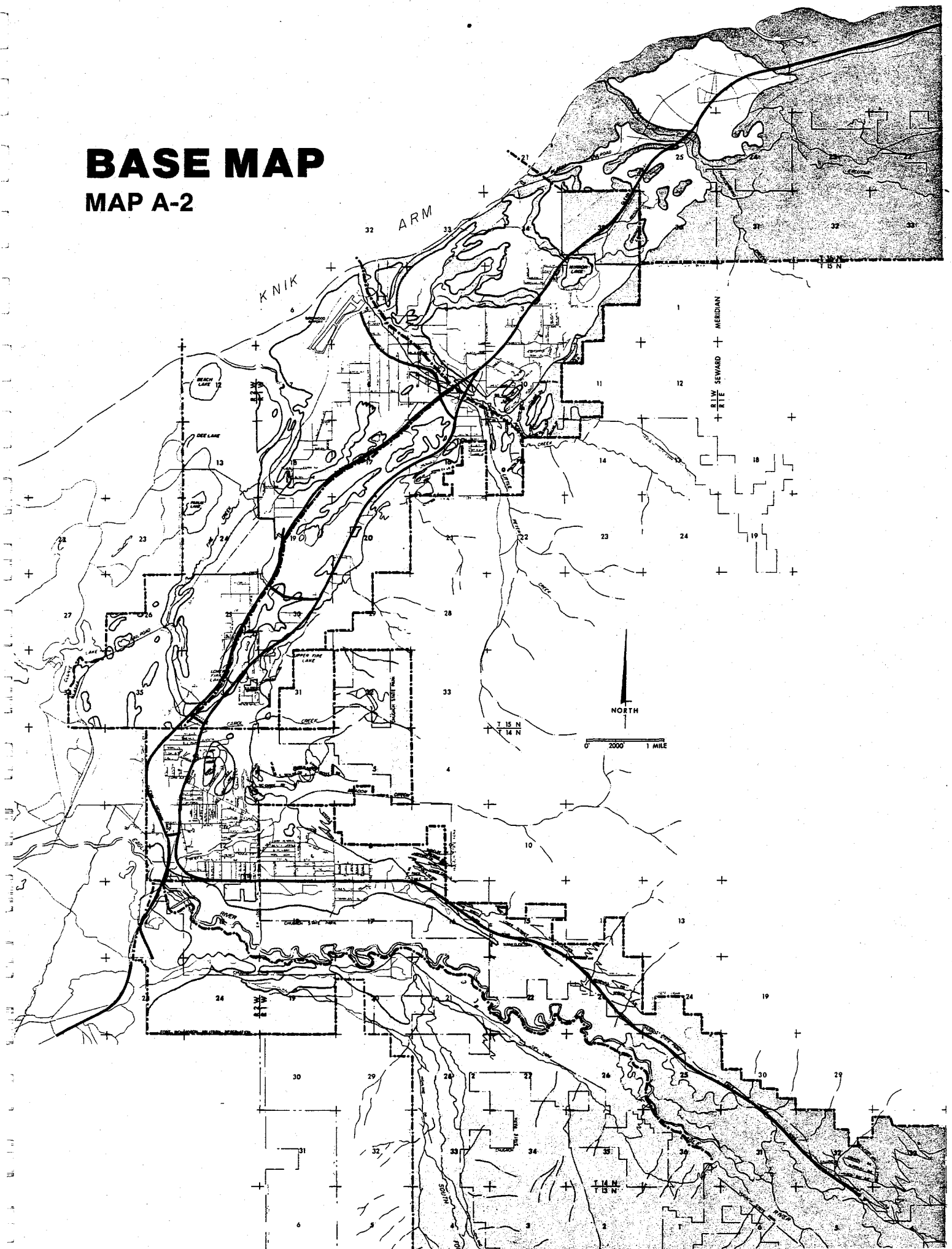
Table A-6

COST/FACILITIES: ALTERNATE 2
(millions)

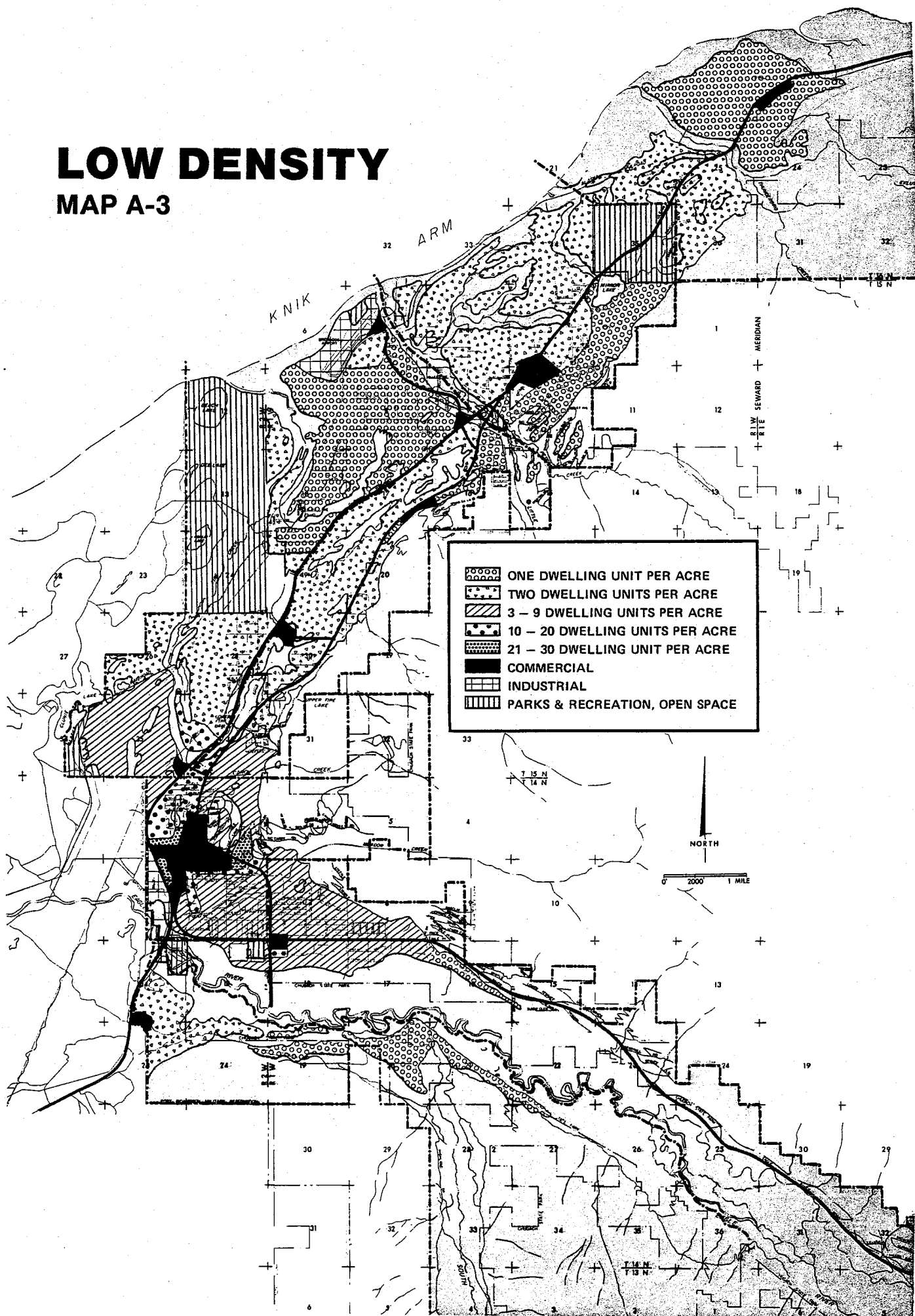
Facility	TAZ 417		TAZ 415		TAZ 412		TAZ 410		TAZ 405		TAZ 408		TAZ 400	
	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost
<u>Schools</u>														
Elementary	3.5	16.3	10.5	49.4	8.2	38.3	3.1	14.6	4.6	21.8	5.5	25.9	1.4	6.6
Junior H.S.	0.9	10.0	2.8	36.3	2.2	28.2	0.8	10.7	1.2	16.0	1.5	19.0	0.4	4.8
Senior H.S.	0.9	10.0	2.8	36.3	2.2	28.2	0.8	10.7	1.2	16.0	1.5	19.0	0.4	4.8
<u>Parks-Recreation</u>														
Neighborhood	2.1	0.8	6.3	2.5	4.9	2.0	1.9	0.7	2.8	1.1	3.3	1.3	0.8	0.3
Community	0.4	0.8	1.3	2.5	1.0	2.0	0.4	0.7	0.6	1.1	0.7	1.3	0.2	0.3
Playgrounds	2.1	0.5	6.3	1.5	4.9	1.2	1.9	0.5	2.8	0.7	3.3	0.8	0.8	0.2
<u>Water</u>		11.0		23.4		22.3		8.7		14.6		13.7		5.1
<u>Sewer</u>		10.2		22.4		13.3		7.0		12.3		12.4		4.8
<u>Roads (Paved)</u>		20.4		44.3		26.4		15.3		22.2		22.8		9.8
Totals		80.0		218.6		161.9		68.9		105.8		116.2		36.7

BASE MAP

MAP A-2



MAP A-3



HIGH DENSITY

MAP A-4

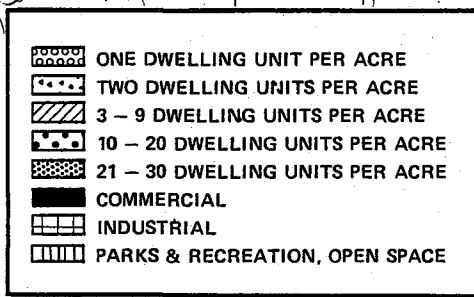
LEGEND

- ONE DWELLING UNIT PER ACRE
- TWO DWELLING UNITS PER ACRE
- 3 - 9 DWELLING UNITS PER ACRE
- 10 - 20 DWELLING UNITS PER ACRE
- 21 - 30 DWELLING UNITS PER ACRE
- COMMERCIAL
- INDUSTRIAL
- PARKS & RECREATION, OPEN SPACE

Scale: 0 2000 1 MILE

North Arrow: NORTH

Map Labels: KNICK ARM, SILVER LAKE, SILVER LAKE CREEK, SECTION 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34.



MODERATE

MAP A-5

