

CITY OF UNALASKA, ALASKA

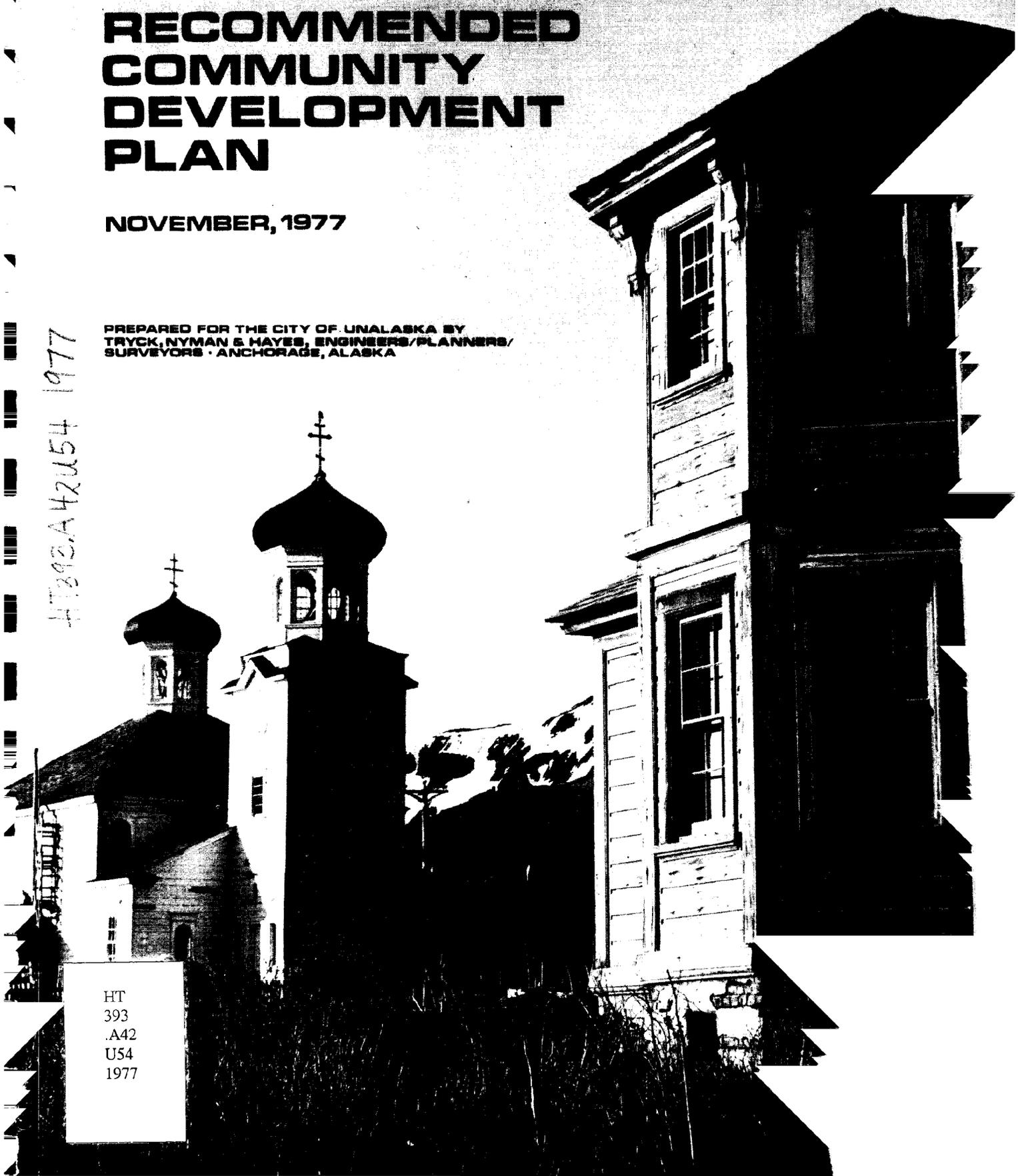
RECOMMENDED COMMUNITY DEVELOPMENT PLAN

NOVEMBER, 1977

PREPARED FOR THE CITY OF UNALASKA BY
TRYCK, NYMAN & HAYES, ENGINEERS/PLANNERS/
SURVEYORS · ANCHORAGE, ALASKA

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ENGINEERS / PLANNERS / SURVEYORS

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November 15, 1977

City of Unalaska
P.O. Box 89
Unalaska, AK 99685

Attention: Mr. Jess Burton, City Manager

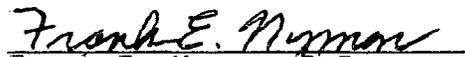
Dear Mr. Burton:

We are pleased to transmit herewith the Proposed Community Development Plan for the City of Unalaska. The Plan has been prepared through the combined efforts of our Planning Services Division and the City Council and your City Staff. We believe that the plan will serve the City well as the Council, the Planning Commission, and the City Administration guide the Community through the next ten year period which will unquestionably witness dynamic growth and development.

We welcome the opportunity to have worked with the City on this project. If we can be of assistance during the review and adoption considerations, please feel free to contact us.

Very truly yours,

TRYCK, NYMAN & HAYES



Frank E. Nyman, P.E.
Senior Partner



Vernon R. Wiggins
Planning Services Manager

cru

Enclosures

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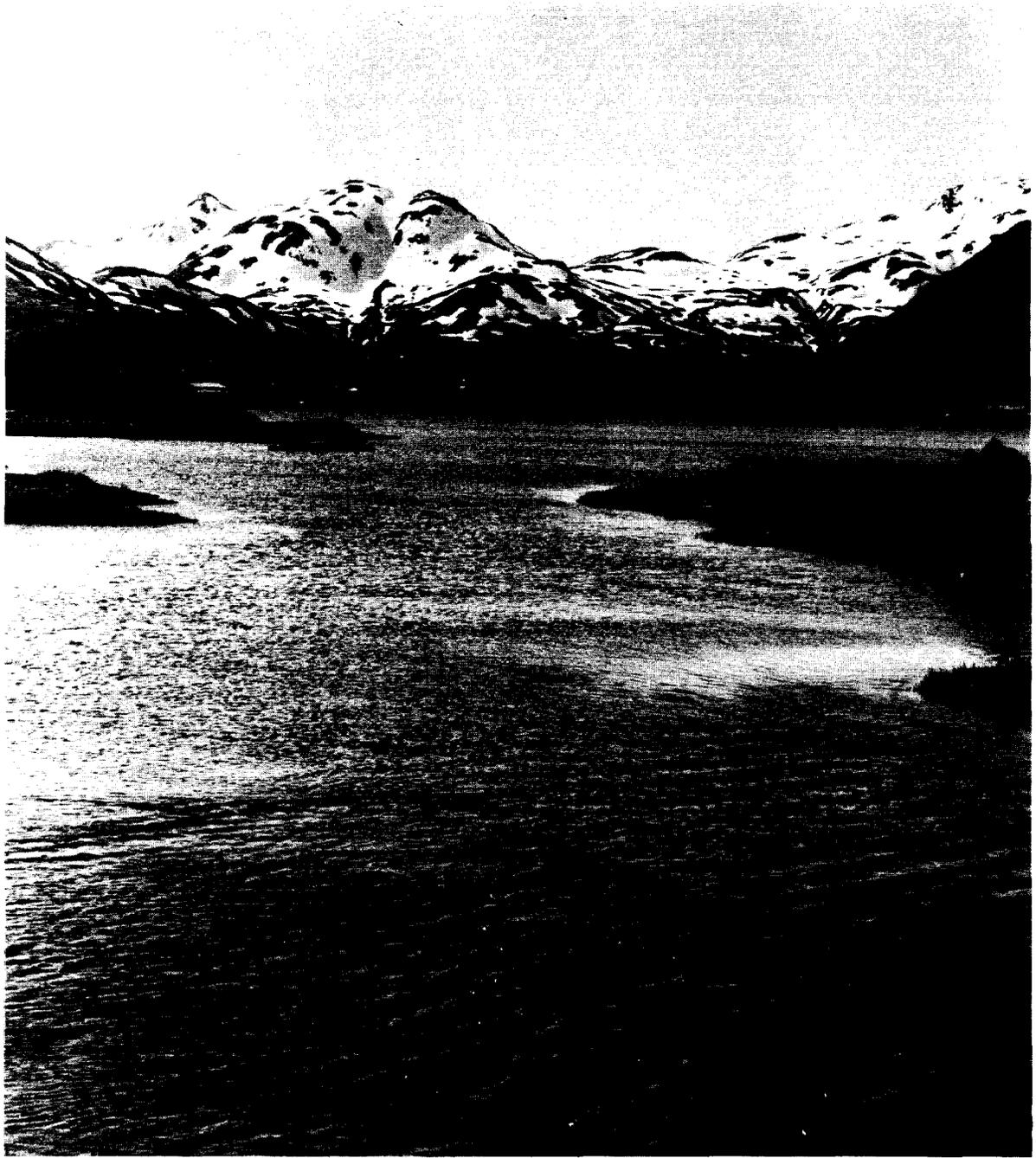
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| BACKGROUND FOR PLANNING

INTRODUCTION

The City of Unalaska is located in Southwest Alaska approximately midway between Anchorage and Adak. The population of the community in 1977 was approximately 1,870 persons, only 33 percent of which were permanent residents, the rest being temporary residents in transient. It is a community with a single economic mainstay - seafood processing. Its economic well-being, indeed its ability to sustain itself is tied inextricably to this export industry. The lifestyle of its residents is best characterized as "basic Alaska independent". Its residents are predominantly caucasian American with 22 percent Aleut Native and only a very few other races and cultures. Unalaska residents live there either because it is their ancestral home or because they like it there - they choose to live in this remote location where there is no land access and only very limited water and air access to the rest of the state or nation.

But, Unalaska is a place rich in natural resources not the least of which is its beauty. It is in the heart of the Southwest Alaska (North Pacific and Bering Sea) prime commercial fishery region. Potential for recovery of commercially valuable oil and gas exists in three nearby offshore outer continental shelf sedimentary basins which are as yet unexplored. The cultural and historical resources of the community include sites of major World War II defense installations, visible evidence of the Russian influence on the region, while Aleut Native culture in Unalaska dates thousands of years in history.

The challenge facing Unalaska and its residents is that of further strengthening the community thus far established in a harsh climate and remote location - strengthening it in a manner which permits continual and expanded recovery of the economically valuable resources and at the same time provides protection for the natural and environmental values which make Unalaska unique and desirable as a place to live and on which its economic viability depends. How successfully the challenge is met depends on how well Unalaska's present population plans for the future of the community, how much independence is necessary to retain the lifestyle, how much the world appetite for food products from the sea increases and how well government agencies and industry manage the marine resources so abundant in the region. This Community Development Plan is intended as a guide for the community to use in deciding and managing the future of the community. It does not contain all of the answers for the future - nor does it contain any magic formula for measuring success. It is, however, a tool with which to work in determining how the City of Unalaska will look and function and how well it will meet the needs of its residents in the future.

The Community Development Plan should be flexible and reflect the wishes of the people, and it should be reviewed regularly for modification as conditions change - and change they will!

The following recommendations are presented by the project consultant to the City of Unalaska relative to the procedure for adopting this Development Plan.

1. It is recommended that the City Council acknowledge receipt of the Community Development Plan as presented by the project consultant. This will officially terminate the project and allow the Department of Community and Regional Affairs and the City to close out the project with the several agencies involved as well as the project consultant.

2. It is recommended that the City Council immediately refer the Plan to the City's Planning Commission for review and formal report back to the Council within approximately 60 days. During this time period the Commission should carefully review the plan and hold a series of workshops or public meetings in the community to permit residents and various interests concerned to critique the plan and comment on it. These workshops should be designed to elicit comments and reactions to the plan from the community. After completing its review, the Commission should present a formal report to the City Council which should contain a summary of

the input received from the community and recommendations from the Commission as to specific modification of any portions of the Plan.

3. Simultaneously, the City Manager should similarly review the Plan and make comments and recommendations to the City Council.

4. After receiving the comments and recommendations from the Planning Commission, the Council should develop a resolution adopting the Community Development Plan, incorporating in the resolution those specific amendments to this report determined appropriate by the Council. This resolution, once adopted by the Council, will constitute the City's adoption of the Plan and will serve to establish as City policy the intent to follow the Plan.

5. Finally, the City Council should, by ordinance, establish a procedure whereby the Planning Commission annually reviews the Plan and makes recommendations to the Council with respect to additional amendments that, from time to time, may be needed.

I. BACKGROUND FOR PLANNING

A. PHYSICAL SETTING

1. LOCATION. The City of Unalaska, Alaska is located in Southwest Alaska, on the Aleutian Islands Chain, approximately 800 air miles from Anchorage, Figure 1. It occupies a portion of Unalaska Island and includes all of the Island of Amaknak. As with all of the major historical Aleut villages, it is located on the Bering Sea, or north side, of the Chain. Unalaska Island is the second major island west of the tip of the Alaska Peninsula. It is the central-most and largest of the Fox Islands group in the Aleutian Chain. Unalaska is remote from the other population centers of the state and is accessible only by airplane or boat. It is the most populated of the several communities in Southwest Alaska. It is a major U.S. fishing port ranking first in total fishery products landed in the state of Alaska. Its economic mainstay is the fishing industry and more specifically, the seafood processing industry.

While there is no acknowledged geographic or social "center" of the Aleutian Chain or southwest Alaska, Unalaska comes closest to fitting that description by virtue of the size of its resident population, civilian employment, freight distribution role and because it has the only developed deep water port on the Chain. It also has scheduled and usually reliable commercial air transport service to Anchorage, the economic center of Alaska.

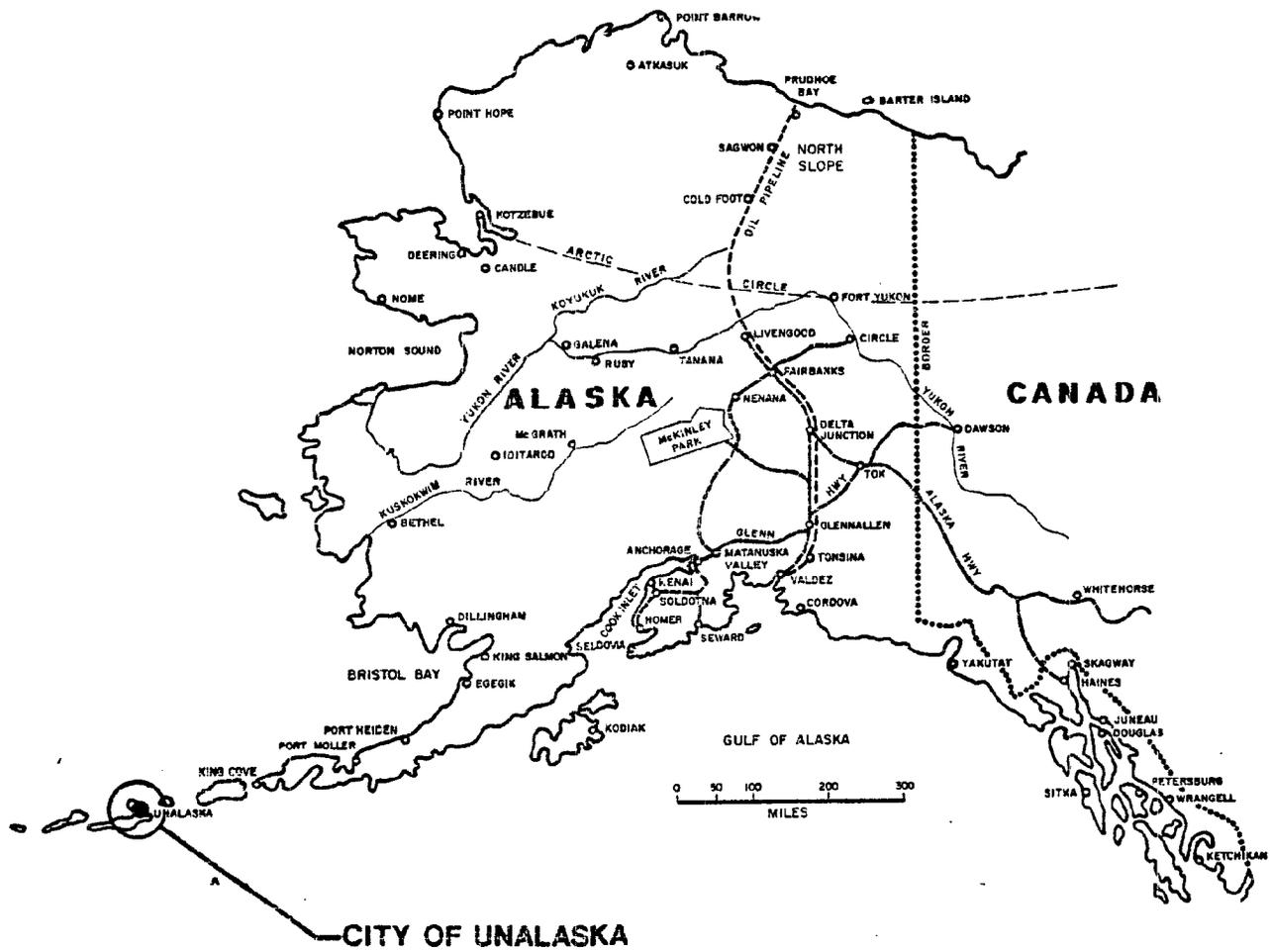


FIGURE 1
LOCATION MAP

The City of Unalaska is located near the head of Unalaska Bay, Figure 2. The head of this wide and exposed bay consists of a number of smaller bays and coves separated by two islands, Hog Island and Amaknak Island, and by steep headlands. Within Unalaska Bay are two protected bays, Captains Bay to the southwest and Iliuliuk Bay to the northeast. Summer Bay, outside the City limits and located further northeast on the Island's coastline, and Nateekin Bay to the northwest and also outside the City limits, are not as well protected as those bays in the inner portion of Unalaska Bay. A protected extension of Iliuliuk Bay is known as Dutch Harbor. A connecting, protected passage between Captains Bay and Iliuliuk Bay is known as Iliuliuk Harbor. The City of Unalaska occupies all of Amaknak Island and a narrow flat area of land along the eastern side of the Bay and a relatively narrow valley extending southward and inland on the main island.

The implications of both the regional and local setting of the City of Unalaska are several and substantial in effect. Being 800 air miles and two to three days by ship from Anchorage, the rapidity with which goods can be supplied is a major problem. The distance to Seattle, an almost equally significant supply point as Anchorage, is 1,780 miles by air (via Anchorage) and approximately the same distance by ship. Thus, the cost of transporting both goods and persons is substantial, leading to one of the highest cost of living indices in Alaska, an added 20-30% over Anchorage. Due to the distances involved and the complexity of connecting airline schedules, travel to Juneau, the state capital and center of government, almost always covers a time span of two days with a required overnight stay in Anchorage each way at a cost exceeding \$750 per person round trip. This contributes to the cost of state government's providing services to people in Unalaska which in turn leads to the feeling on the part of Unalaska residents that they are isolated from their state government, unable to participate in the governmental process as it affects them and virtually forgotten in the delivery of state government services. Frequent and sometimes extended periods of inclement weather causing cancellation of scheduled airline service into and out of Unalaska further compounds the problems associated with delivery of goods and services. The remoteness and small comparative population of the community dictates high freight and transportation rates by comparison to similarly sized communities located in, for example, Southeast Alaska.

On the positive side, however, Unalaska's location has advantages. Being the site of the only developed deep water refuge in the Aleutian Chain, it serves as a stop-over and refueling point for sea-lift operations serving the Bering Sea Alaska communities, western and northwestern Alaska and the North Slope area of Alaska. Unalaska is located some 65

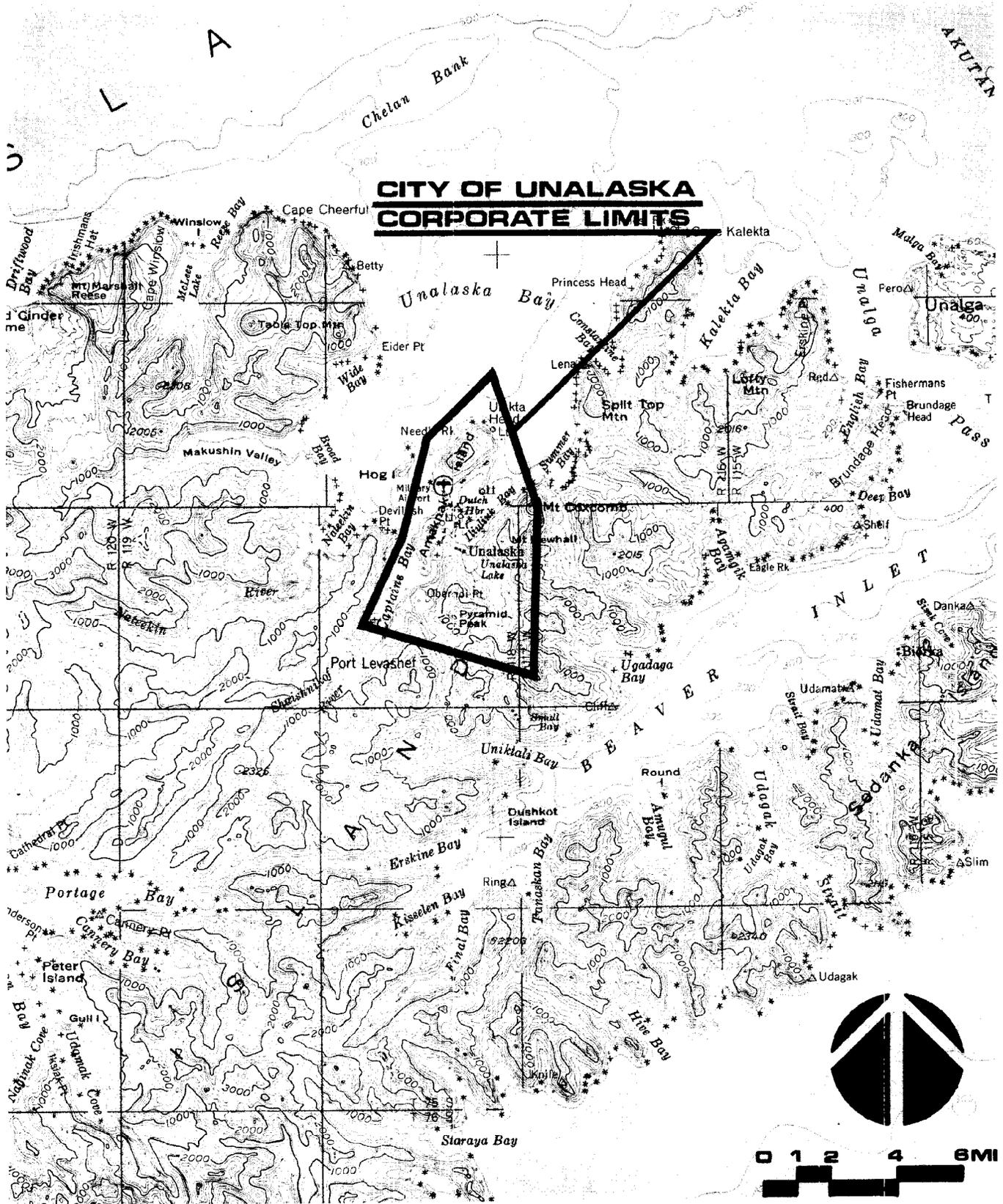


FIGURE 2
Unalaska Bay and Surrounding Area

miles southwest of Unimak Pass, the first ocean vessel access through the Chain west of the Alaska Peninsula between the north Pacific Ocean and the Bering Sea. All ship traffic between southeast, southcentral (and specifically Anchorage as the commercial center of Alaska) and the western and northern regions of the state passes through Unimak Pass. The same holds true of ship traffic between the northwest United States (specifically Seattle, Washington as a major supply point) and western and northern Alaska. Being in this strategic location along a major shipping route, Unalaska does receive the benefit of some greater frequency in shipping than might otherwise be the case. Whether this reduces the costs (comparatively) of delivery of goods, however, is questionable.

Unalaska is centrally located to Alaska's Pacific and Bering Sea fishing grounds. Thus, many of the major seafood processing companies have processing facilities for shrimp, crab, and recently in the initial stages, bottomfish in Unalaska. The seafood processing industry is overwhelmingly the primary economic activity in the community. This is a direct result of Unalaska's geographic location in relation to the fishing grounds and the presence of the sheltered harbor with deep water.

2. GEOLOGY AND NATURAL FEATURES. Formation of the Aleutian Range of mountains, and their southwesterly extension, the Aleutian Islands, began about sixty million years ago, with massive outpourings of volcanic material from beneath the earth's crust. Geologically, the Range and the Islands are known as the "Unalaska Formation". A few million years later, the Unalaska Formation was further intruded by molten outpourings from within the earth.

A time of deep erosion followed and is recorded by the unconformity of materials at the bottom of the lava flows present in the region. Depths of the flows vary greatly from one area to another, indicating the presence of deep valleys and ravines, covered by the molten and loose volcanic material. The shape of the original valleys and ground forms were similar to what is found in the Aleutian Chain today indicating that a full geologic cycle has been completed. The deposition of volcanic material upon the eroding rock occurred possibly as few as five million years ago.

Unalaska Island was probably a moderately rugged land mass five million years ago. Many of the present major land features of the Island have been inherited from that time. Less than one million years ago, the activity of Makushin Volcano and other nearby volcanoes diminished considerably, and glaciers and streams began eroding the volcano's slopes and surrounding areas. The summit of Makushin Volcano eventually collapsed to form the present cauldера.

During the two glaciations of Unalaska Island, most of the high country south of Makushin Volcano and areas surrounding it were capped with glacial ice which flowed out into the bays and fiords widening and deepening them. Smaller galciers originated on lower parts of the island and caused erosion on a small scale. Today the present snowline lies near 3,000 or 4,000 feet elevation with allowances made for variations in the weather annually.

Much of the volcanic bedrock of the Island has been covered by occasional eruptions from area volcanoes with ash and other material increasing in depth with each eruption. Most of these ash eruptions occurred before the arrival of the Pre-Aleut people to the island, four to six thousand years ago.

Makushin Volcano has erupted 14 times since 1700 A.D., the last major eruption occurring in 1938. Ash eruptions have occurred as recently as 1951. Makushin and other nearby volcanoes are still engaged in the island-building process.

a. Soils. Many cirque bottoms (rounded depressions on slopes where glacial action has removed much of the material) are found on Unalaska Island. Some contain irregular and blocky rock and soil materials. Other cirques, particularly those at lower elevations, contain glacial till dating to the last Wisconsin period of glacial ice advance. A thin veneer of glacial ground moraine covers parts of the Island but is absent in the more rugged interior portions. Glacial till (a gravelly, rocky, unsorted soil) is present on the Island and is evidenced in nearly all road cuts in the Unalaska community.

The large alluvial deposit at the northern end of the Unalaska Creek Valley is conspicuous. Stream flow on Unalaska Creek has deposited the suspended load as it abruptly slows upon reaching the valley floor. This deposition has created much of the flat land along Unalaska Creek Valley with coarse (or larger) material being deposited at the upper end of the valley, and finer material deposited further downstream.

The Unalaska town site is located on an extension of the alluvial deposit. Resulting from a combination of natural forces, including deposition by stream, wave action creating beach deposits and uplifting on a large scale, the "spit-like" formation is composed of sand and gravel. A soil sample taken from the east side of Unalaska Lake on one of the many rolling knolls, indicates a two-foot layer of humus-rich organic soil at the surface, a one-foot layer of volcanic material below, a one-foot layer of clay-rich soil

followed by unknown depths of glacial till. Likewise, soil samples taken on Amaknak Island north of the aircraft hanger indicate a soil profile of two and one half feet of rich humus, a six inch layer of volcanic thrown material, an eighteen-inch deep layer of clay-rich soil, followed by two feet of glacial till overlying bedrock. These soil samples tend to indicate that the soil mantle in the Unalaska community varies greatly from one area to the next. In general, however, the soil is looser and more humid in the upward zones, and contains more clay downward. The underlying bedrock is quite often shattered and cracked, and can be readily removed from most areas for fill, road cuts, site development and utility installations.

b. Erosion and Landslides. Creeping and sliding of the soil mantle is characteristic of the Unalaska soil types and is found extensively throughout the area. It results from a combination of the steep slopes and the high moisture content of the soil. Flows and landslide scars are particularly present on glacially-steep valley walls. Landslides are recorded throughout the area and most often occur as small, isolated portions of steep slopes tumbling or sliding downward as a result of excessive water saturation, snow loading, avalanche or man's alteration of natural conditions. Areas which may be subject to slides are easily identified by their steep, smooth faces and slopes, and should be avoided when selecting potential development sites. Several such slide areas are present along Captains Bay Road, at points along the Pryamid Creek Road and at several locations on Amaknak Island. Many of the early military access roads, not having been maintained over the years, show evidence of small scale landslide activity. The Natural Features Map, Figure 3, illustrates those observable locations.

Marine erosion and deposition are evident throughout the area. Steep hillsides and occasional cliffs indicate earlier and present-day wave erosion in less protected areas of the coastline. Exposed utility pipes and the eroded north end of the airport runway indicate heavy wave erosion on the north and westerly sides of Amaknak Island. Wave-cut rock benches, visible at low tide, are found along the moderately protected shores, but are not found on the protected shores. Beach deposits of boulders, gravel and sand are found at the heads of all but the most protected bays. Beach berms often exist along stretches of open coastline as is the case adjacent to the present landfill site on Iliuliuk Bay. Storm waves wash material up onto the beach building the higher flat areas which normally are not inundated by tidal action.

Wave action also constructs spits and bars. The two major spits in the community are the spit at Dutch Harbor extending nearly to the center of Iliuliuk Bay, and the spit upon which most of the mainland Unalaska community is built, between Iliuliuk River and Iliuliuk Bay. These formations exist in a state of natural balance and any interference with either the forces which created and maintain them or with their existing condition will tend to disrupt the balance and could lead to their possible destruction or substantial change in the existing balanced condition.

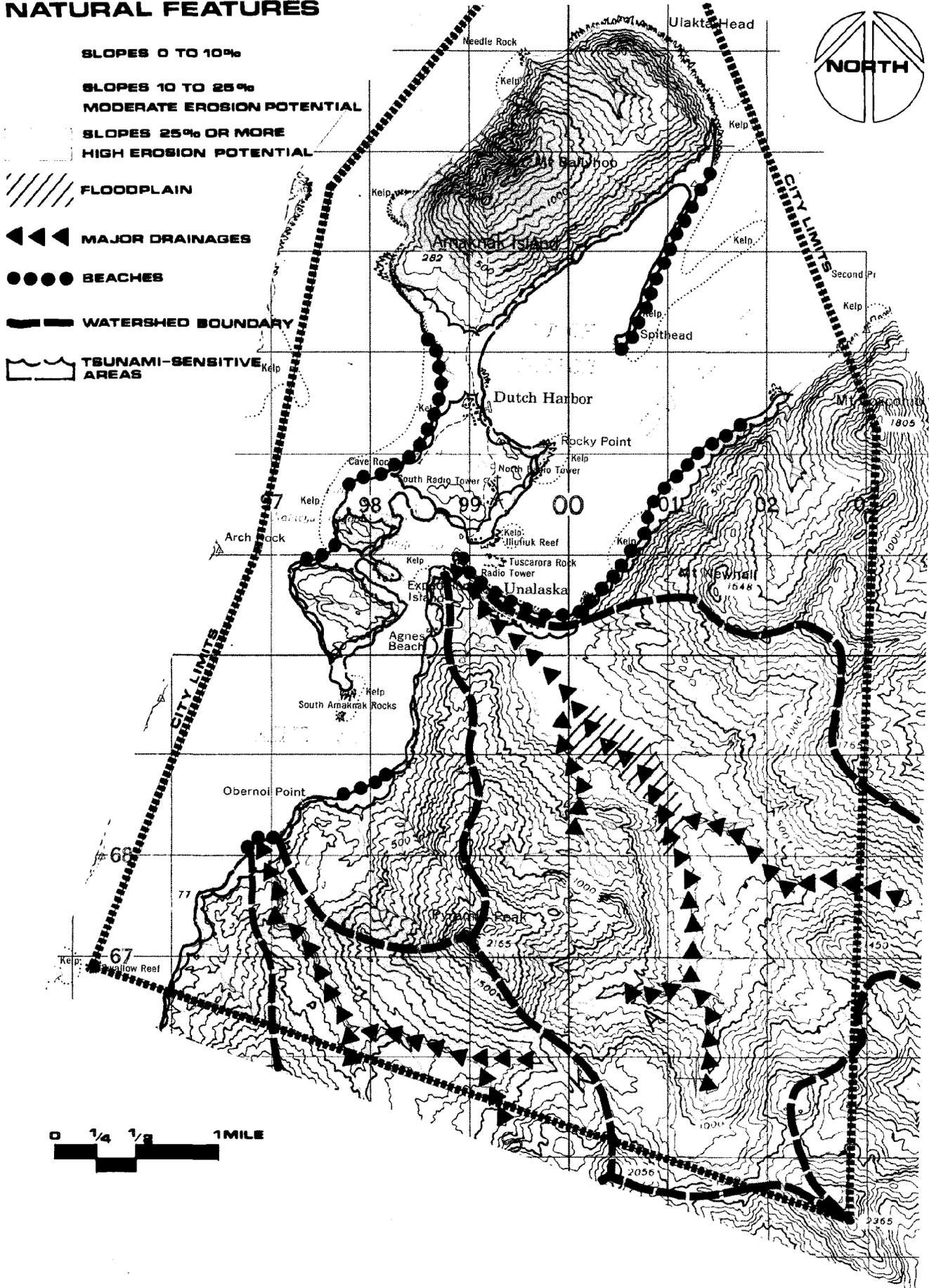
c. Topography. Groundforms vary from broad, flat valleys to steep mountainous ridges. The area encompassed by the Unalaska City limits can be characterized as a mountainous area with hills and flat lands along the coastline. Elevations in the City range from sea level to 2,365 feet above sea level.

Analysis of the area topography indicates that a considerable portion of the land is generally unusable for community expansion or development. Figure 3 illustrates the topography of the area. The map shows three slope categories. The flattest category, zero to ten percent slope (0% - 10%) is the most optimum for development of housing, industry, roads, utilities and community facilities. The middle category, ten to twenty-five percent slope (10% - 25%), is much less desirable for community development, but can, in certain areas, and under certain conditions, be used for residential development with a high degree of success. The steepest category, twenty-five percent slope or steeper (+25%), has very little development potential except for such uses as recreation, open space, watershed and like uses.

Because of the hilly terrain and because the contour interval of the only topographic mapping available for use in this study (100' interval), areas less than four to five acres in size can not be identified on the slope gradient map. The map, however, is accurate for these purposes and does generally identify the developable land in the City. Excellent small areas for housing and other community development do exist in isolated areas among the much steeper hills and valleys. The determining factor in eventual development or use of these areas is the ease (physical and cost-wise) with which access, utilities and public services can be provided.

d. Earthquake Potential. The Aleutian Islands lie adjacent to the Aleutian Trench, one of the most active earthquake regions of the world. This area not only has the highest frequency of earthquakes in North America, but more energy is released as a result of earthquake activity here

FIGURE 3
NATURAL FEATURES



than anywhere else on the North American continent. Unalaska falls within earthquake zones 3 and 4, where the possibility of major damage resulting from earthquakes of major proportions exists. Ninety-three (93) earthquakes of magnitude 5 or greater occurred in the Aleutian region between 1972 and 1974. Specialized building techniques and structural design must be employed in zones 3 and 4 to counteract stresses and forces placed on buildings and other structures during earthquakes.

Tsunamis, seismic sea waves, are sometimes generated by earthquake activity and crustal movements. These are often generated along the Aleutian Chain and can have disastrous effects throughout the Pacific Basin. Earthquakes occurring elsewhere in the Pacific rim can cause tsunami waves to reach Unalaska Island also. However, since the community is located on the north, or Bering Sea, side of the chain there is very little, if any, probability that a substantial tsunami wave of rapid and destructive force could affect Unalaska. The major consideration in Unalaska with respect to the tsunami problem is the rapid rising of ocean waters sometimes associated with tsunami activity rather than the destructive tidal wave of rapid movement and great height as occurred in 1964 in Valdez and Kodiak. In low lying areas at or adjacent to sea level elevation even a two or three foot increase in sea level could cause flooding. The tsunami watch station at Unalaska is part of the Alaska Regional Warning System, which monitors tsunamic activity throughout the state.

e. Drainage. Two major watershed areas are found within the Unalaska City boundaries, Unalaska Creek watershed and Pyramid Creek watershed, both on Unalaska Island (See Figure 3). No major watershed areas are evident on Amaknak Island, although due to the pronounced topographic variations on the Island, localized drainage areas are evident and pronounced.

The Unalaska Creek watershed encompasses about seven (7) square miles of drainage area, about half the total land area within the corporate limits of the City. Nearly all of its drainage is within the City limits. Only a portion of the Creek's total watershed is presently contributing water to the City's supply as only one of several forks of the stream have been tapped for supply. Pyramid Creek watershed, about five (5) square miles in area, has nearly two-thirds its drainage area outside the City limits. These two adjacent watersheds both drain towards the northwest into Captains Bay and Iliuliuk Bay. They share the same dividing ridge connecting Lookout Mountain, Pyramid Pass, Pyramid Mountain and Unalaska Ridge.

The two watersheds demonstrate distinct differences in characteristics. Pyramid Creek tends to be steep-walled its entire length, while Unalaska Creek, although steep-walled at its upper reaches, widens to a meandering valley floor one mile (approximately) wide in places. From the standpoint of impact, Unalaska Creek drainage will most likely be subjected to a higher degree of community expansion and development than Pyramid Creek valley where comparatively few areas are usable for community development expansion.

Drainage of surface waters into the soil in both watersheds varies from excellent in areas with high percentage of gravel and permeable soils to poor in areas with clay-based soils and areas with underlying bedrock near the surface. Generally, percolation rates are highest in areas along the edges of the valley bottoms, where much fine material has been deposited. Percolation rates are also higher in areas where the soils have been stream-sorted than in areas of glacial till, with unsorted material and silt blocking water flow.

3. LOCAL ENVIRONMENT. The Unalaska area experiences a distinct maritime environment. Its exposed location between the North Pacific Ocean and the Bering Sea is the most influencing factor upon the development of its natural environment. The Aleutian Islands are especially noted for their wet and frequently overcast conditions, stormy weather and treeless, rocky land form covered with a short, thick mantle of vegetation. The seas, bays and fiords surrounding the many islands are generally extremely rich in marine life. A heavy growth of marine vegetation is found throughout the region.

a. Climate. The climate at Unalaska is influenced most strongly by two factors - the amount of sunlight and the ocean waters surrounding the Island. The northern latitude of the community affects the angle of the sun's rays reaching and warming the ground. The low angle during winter months provides little heating, while the clouds often block the warming sun's rays during the summer.

The sea exerts a large influence upon the region's weather. The sea water temperature does not change but a few degrees by season. As a result, the somewhat constant sea water temperature warms the air in the winter and cools it in the summer. The Aleutian Islands, therefore, do not experience the large seasonal temperature variations experienced at locations more northerly or inland on the Alaska mainland. Average temperatures in Unalaska range from 40 to 60 degrees Fahrenheit in the summer months to 27 to 37 degrees during

the winter months. Average annual precipitation is 58 inches, including 81 inches of snowfall. An average wind of 11 miles per hour blows from the southeast. The highest recorded wind at Unalaska was 80 miles per hour, blowing from the east.

b. Vegetation. Vegetation found in the Unalaska vicinity consists largely of Alpine tundra. The windy, cool climate, shallow soil, relatively recent geologic history along with the topography and isolated location of the Aleutian Islands away from larger mainland areas prevents the natural establishment of larger vegetation types, especially trees. The ability of the region to support tree growth, however, is apparent throughout the Aleutian Islands where early Russian settlers, and later American military forces, planted trees which now inhabit various locations. Russian settlers planted spruce trees at Dutch Harbor in 1805. Many of these trees are still thriving and are parent to many seedlings. This is by no means, though, an indication that the Island will eventually become covered with large trees; the harsh, wet climate is more suited to the low, lush vegetation now found covering all but the rockiest locations throughout the Island.

The lowland flat areas have the largest variety of lichens, heaths and other tundra vegetation. Steeper slopes and higher elevations are covered with lichens, mosses and low-growing alpine plants. Plant species found in the vicinity include blueberry, crowberry, and lichens, as well as various small shrubs, herbs, ferns, mosses and grasses. The tightly woven mat of vegetation found throughout the area is important as a slope stabilizer and as an erosion and flood deterrent.

c. Wildlife. Wildlife found in the Unalaska vicinity includes sea lions, harbor seals, sea otter, small land mammals, sea birds and a wide variety of sea animals. Many types of fishes and crustaceans are found in the area, evidenced by the amount of commercial fishing and crabbing done. Local streams support populations of char and salmon.

4. ENVIRONMENTAL ASSESSMENT. An analysis of the natural environment as it relates to community development is an important consideration in preparation of a land use plan for the Unalaska community. The assessment must be viewed from two perspectives: man's use of the land and the effect of that use upon the environment; and the effect of the environment on the uses to which the land will be subjected. Factors affecting land use, present and future, must be identified for their consequences and possible courses of

action to alleviate the consequences. These factors fall into two categories; natural hazards and man-made hazards. Natural hazards include geologic, hydraulic, seismic and other hazards as may be apparent. Most of these have been identified. Others will be described herein. Man-made hazards include sewage and refuse disposal, water supply, alteration of natural drainage patterns, increased erosion and storm water runoff, among others.

a. Floodplains. From visual observation and from study of old Military maps of the area it is believed that a floodplain of some extent exists along the Unalaska Creek Valley. A floodplain also possibly exists along the extreme lower reaches of the Pyramid Creek Valley. For the purposes of this assessment, however, only broad generalizations can be made as to their extent or significance. An extensive engineering study would have to be performed to factually determine the existence and the limits of the floodplains and any possible consequences of development such as filling of low areas, road construction, bridges, culverts, and structures. However, it is assumed that flood potential at least to a limited degree is present at Unalaska Creek (as identified on Figure 3) and that only a very limited flood potential possibly exists in the extreme low reaches of Pyramid Creek Valley. Because of the short stretch of stream that might be subject to flooding on Pyramid Creek, the flood potential is considered inconsequential, and no action will be recommended with respect to land use in the area.

In any normal floodplain, three zones are found; the stream bed, the "floodway", and the "floodway fringe". The stream bed is the area occupied by the water course when it is running at normal water level. The "floodway" is the area inundated by waters necessary to accommodate the flow of water from upstream under flooding conditions, usually designated by a criteria labeled as a "50-year" or "100-year" flood. Any development or fill in this area will have an effect upon other properties; i.e., upstream properties may be flooded more as a result of the "damming" effect of the downstream obstruction. Other effects may include the displacement or relocation of the stream channel, or increased flooding in areas across the stream from the location of the "damming". The "floodway fringe" is an area along the stream which may be inundated by waters if unusual flooding conditions occur. Development in this area is safe from flooding if it is constructed at an elevation above the possible flood waters. Generally, this means filling of the subject site. The significance of the flooding potential on Unalaska Creek is not possible to quantify without first, as stated, determining the boundaries of the floodway. Figure 3 illustrates the possible floodplain of the Creek. It is

shown to alert City officials, property owners and those who would potentially develop land in the area to the possible existence of a problem. The City is urged to seek the assistance of the U.S. Department of Housing and Urban Development Flood Insurance Administration in determining the existence and extent of any flood potential on Unalaska Creek.

b. Climate. The climate in Unalaska plays an important role in development of a land use plan for the community. Wind and resultant rough seas, clouds and fog and precipitation including snow loading characteristics have some impact upon the type of development that occurs in the community. Weather affects shipping, aviation, construction and lifestyle in general.

Location of water-dependent facilities is a major climate-affected factor in Unalaska. High winds creating rough seas and difficult docking and mooring force these activities into the more protected bays and harbors. Protected harbor areas, therefore, are premium locations for development in the community. It is a well-known fact in the community that aviation activity is extremely dependent upon weather conditions. Clouds and wind conditions often prevent scheduled landings at the airport. High winds and heavy, wet snows create loading effects upon structures which must be accounted for during their design and construction.

The generally cool, windy weather prevalent in the community limits, to some degree, the amount of outdoor activity by residents. Although temperatures may be favorable to outdoor activities (i.e., recreation, including hiking, boating and other activities), wind and precipitation reduces the comfort range, and many residents find indoor activities more to their liking at these times, as noted by the community's heavy use of existing indoor recreation facilities and high amount of personal social activity.

c. Sewage Disposal. Three methods for handling sewage are currently employed in the Unalaska community. These are: individual septic tank treatment for a considerable portion of all domestic sewage; collection through old sewer lines and an outfall untreated into the harbors; and collection and treatment by individual fish processors aboard ship. Growth of the community and major industry, as well as failure of a few septic systems has raised concern in the community as to the adequacy of the existing systems of waste treatment.

Most all the residences and other buildings on the town spit are either served by septic tanks or connected to the

old military outfall line which discharges into Iliuliuk Bay. Although sewage is untreated, a large amount of infiltration of groundwater enters the pipe through cracks and broken service lines, diluting the sewage to a point where it has little, if any, harmful effect to the waters of the bay as it is discharged.

The major sewage producers, the fish processors, treat sewage at their facilities. Domestic wastes from the processors are treated in individual treatment plants before being discharged into the bay. Wastes from seafood processing operations are ground and pumped to the west side of Amaknak Island where they are discharged into the open waters of Unalaska Bay via off-shore outfall lines.

d. Water Supply. An adequate supply of water is necessary to meet the domestic, industrial and fire-fighting needs of the City. Water is supplied from two intake impoundments, one on upper Unalaska Creek and the other on upper Pyramid Creek. Two supplemental wells are located in the bottom of the Unalaska Creek Valley to provide additional volume when needed, generally for short periods of time during the winter months when low flow conditions occur on the source streams. The newly renovated systems provide a steady, filtered and chlorinated supply.

Community and industry growth will eventually surpass the present system's capabilities, and additional water sources will need to be developed. An engineering study has demonstrated that additional sources are available to meet anticipated demands. Additional supply could be developed on both Unalaska and Pyramid Creeks. Unalaska Lake could be used for added supply and several streams tributary to Unalaska Creek could be developed. Additionally, further sources on streams distant from the developed portion of the community could be utilized although at greater cost. Protection of valuable watershed areas is therefore a must for future water needs, as well as the retention of potential well sites along the Unalaska Creek bottom for additional supply.

e. Solid Waste Disposal. Proper disposal of a community's solid wastes is a necessary element from a visual as well as a health standpoint. Three major dumpsites are found in the Unalaska Community; one on the west side of Amaknak Island, one north of the town spit on the east side of Iliuliuk Bay, and a third dumpsite adjacent to Pyramid Creek near Captains Bay. Unfortunately, all three sites are immediately adjacent to water. Until recently, almost no compaction and cover of waste materials was being accomplished and no controls are placed upon users. This has resulted in

an unsanitary, visual blight in the area of each dump. At the time of this report, the City is attempting to alleviate the situation somewhat with grading and covering of some of the material at the dump on Iliuliuk Bay.

An effective solid waste disposal program should be implemented for the City. A suitable sanitary landfill site needs to be identified, a regular program of compaction and covering needs to be implemented and closer monitoring of disposal activities needs to be instituted. All burning at the existing and a newly developed landfill should be prohibited.

f. Special Soil Conditions. Special attention needs to be given to such activities as stripping of vegetation, road construction and other potential erosion causing activities. The generally steep gradients prevalent in the Unalaska community, coupled with soil characteristics conducive to sliding, sloughing and soil fluctuation and high moisture content of the soils makes the soils prone to quick erosion and sliding. Evidence exists throughout the area of past road building efforts, mostly by the military, where slides have occurred. Old military maps of the area are covered with notations alerting to the presence of mud, rock, and snow slides. The City should be especially aware of this problem and develop road building standards which, through minimizing slope and angle of roadway cuts, reduces the slide hazard. While this may add to the initial cost in construction and may even preclude some areas from being developed or delay their development for some years, the long term benefits will be realized in lower maintenance costs and possible preservation of properties.

g. Historical Preservation. Several areas and structures within the City of Unalaska are of considerable historic significance and thus merit preservation. The Russian Church and priest's residence, both built in the early 1800's, are of major historic significance both locally and statewide. The church is the oldest in the state and is included on the National Historic Register. Significant archaeological sites are located in the vicinity, with the most recent dig being a find of major significance. Most sites in the community were dug or destroyed during construction of military facilities. Recent investigations related to the construction of the bridge between Amaknak and Unalaska Islands, identified the site at the bridge's western end as needing immediate study. This site has developed into one of major significance. It is a deep and stratified midden with findings including stone and bone artifacts.

Currently, state and federal laws require that the appropriate agency be notified of a possible archaeological find during construction and development work. Other important sites may be found from time to time within the City, and it should be ensured that these sites are not destroyed before their significance is known.

Several of the structures constructed during World War II may be worthy of preservation as historic sites also. Some of the structures will be preserved for use as housing, storage and other uses, while some will be preserved simply because they are built of reinforced concrete of such dimension that they cannot be removed nor will they deteriorate from exposure to the elements. The stronger of these structures include the main power house on Amaknak Island, the control and communication bunkers, and many bunkers and pillboxes throughout the area. Other structures which merit consideration for preservation are the Burma Road Theater and the brick-construction Coast Guard building on Amaknak Island.

Special consideration should be given to preserving the spruce trees scattered in several locations on Amaknak Island which were planted by the Russian settlers in the early 1800's. It is suspected that some of the trees presently on both Amaknak and Unalaska Islands are the result of transplanting or planting of seedlings from those originally planted by the Russians. Two specific areas are noted here as being worthy of special attention. Along the westerly shore of the water reservoir on Amaknak, there is a small grouping of these trees. It is believed that these are some of those originally planted. The second area is located on the top of the bluff on the northeasterly side of Iliuliuk Harbor. The City should give consideration to protecting these areas from any development and thus preserving the trees.

One early function of the City's coastal zone management program when implemented should be to more thoroughly survey the community and search early records as well as interview early residents of the area to determine the possible existence of historically significant features not here noted. Once identified these should be evaluated and considered for preservation.

B. HISTORY

The first people inhabiting the Unalaska region were those who are thought to have crossed over into Alaska from Siberia on the "Bering Land Bridge", which is believed to have existed about fifteen to twenty thousand years ago. During a period of advancing ice fields and glaciers, the sea level apparently was reduced, allowing a large area of the shallow Bering Sea floor to be exposed (the Land Bridge). Its relatively flat surface made for easy travel, allowing man to cross in significant numbers until the sea once again returned, about ten thousand years ago. The group of people who eventually settled as the Aleuts along the islands of the Aleutians were descendants of coastal peoples of Russian Siberia, following the coast of the land bridge and eventually settling along the Alaskan coast and Aleutian Islands. Cultural differences developed as a result of geographical separation from other settlements.

The earliest evidence of man's occupation of the Islands is found on Anangula Island, and dates the site to near 6,000 B.C. Many archaeological sites have been identified along the chain of the Aleutians, and indicate that a marine-oriented lifestyle was common among all its inhabitants.

An expedition of Russian ships reached the Aleutians in 1741. The abundance of furs brought many more ships in the years to follow. Russian fur hunters exploited the resources of the Aleutians during the following 43 years.

The sixteen thousand or so Aleut inhabitants of the Islands were affected seriously and in many respects, negatively, by the Russian presence. Many were placed into slavery, while a majority of the population died as a result of exposure to diseases to which they had no immunity.

By the late 1700s the Russians were looking eastward for better pelts, and to a large degree had abandoned the Aleutians. They did, however, retain several strategic outposts, one of those being Iliuliuk Harbor, the site of present day Unalaska. Russian control over this harbor of refuge was maintained until about 1850 when fur availability was seriously diminished. Russian control was eliminated in 1867 with the purchase of Alaska by the United States of America.

American influence in Alaska deepened as people migrated northward, with increased interest in furs, fishing and whaling. Dutch Harbor flourished in the 1880s as a coaling station and commercial trade center. The Klondike Gold Rush

in the 1890s brought many ships to Dutch Harbor, strategically located along Unimak Pass leading to the Bering Sea, the western coast of Alaska and the gateway to the gold fields of northwest Alaska. Several seafood processing plants may have been in operation in the Unalaska community in the early 1900s, processing herring, salmon and whale meat.

As coal began to be replaced by oil as ship fuel, the coal trade began to diminish in Dutch Harbor. The fox farming program established throughout the Aleutians in 1910 provided much economic benefit to Unalaska until the Great Depression of the 1930s saw the collapse of the fur industry. The area remained severely depressed for several years following.

At the beginning of World War II and the increasing threat of Japanese hostility, Unalaska played an important role in the defense of the North Pacific. U. S. military forces took keen interest in Dutch and Iliuliuk Harbors' strategic location, near the first navigable pass between the Alaska Peninsula and the Aleutian Islands. Its location and deep water harbor also made it an excellent candidate for a major refueling and transshipment point on a Great Circle navigation route between Japan and the United States mainland. Dutch Harbor Naval Station and the U.S. Army's Fort Mears were established at Unalaska at the beginning of World War II. Other military installations were established on Hog Island, at Eider Point and remote locations throughout the area. Many Native residents were evacuated to Southeast Alaska communities for reasons of security and their own safety. An attack on Dutch Harbor by carrier-based Japanese aircraft on June 3, 1942 caused both Army and Naval forces to further strengthen their defenses. Permanent facilities were constructed at Dutch Harbor including a major hospital complex, docking and fueling facilities, submarine drydocking and repair facilities, an airport, and extensive living and recreational facilities.

Major defense systems were designed and constructed at strategic locations throughout the many bays and mountainous areas surrounding the military bases. Many of the gun emplacements and lookout stations required herculean efforts to construct, and as a result of their heavy construction, still remain much as they were built, probably to remain as reminders of the City's past for decades to come. One such facility is the central power plant on Amaknak Island. The building is massive in its construction, reportedly having been designed to withstand a direct hit by a 500 lb. bomb.

After the war, those villagers that were able to return home found their villages severely damaged or obliterated. The population of Unalaska was reported to be about 300 persons after the war.

Interest in the fishery resources of the Aleutians began to gather impetus around 1950 with the harvesting and processing of halibut, salmon and king crab. Many new jobs became available, and the local economy improved considerably. The growth of the king crab industry in the early 1960s significantly improved the economy of Unalaska.

Much evidence of Unalaska's history is visibly present in the community. Some archaeological sites of importance are known and have been studied. A considerable amount of work has been done in the region, although not all has been published. While Aleutian archeological investigation has been in effect for a 100 years, as evidenced by the work of W. Dall in 1877, there is no detailed mapping of specific sites. References to specific sites are in narrative form in various reports, the only mapping being done is on a 1:250,000 scale (approximately 4 miles to the inch), which is inadequate for planning or construction purposes.

The Unalaska area typifies this situation as it exist in the Aleutian Region. Published archeological works, most notably by T. Banks and A. McCartney, indicate the existence of a number of midden sites, and some site excavation has actually been completed. However, what is probably the most thorough site reconnaissance, accomplished by Captain (Dr.) Cahn, who was stationed at Dutch Harbor during World War II, has never been published and exists only by reference in other published works.

Several archaeological sites are known to exist in the Unalaska immediate area, some approximately located and others not. One important site is known to be on the west side of Amaknak Island just across from the Unisea complex; this site is presently being utilized as a garbage dump. Three more sites are generally known to be on the southwest shore of the "South America" portion of Amaknak; another just south of Haystack Hill on Unalaska Island; and approximately seven more sites scattered around the City. There are also sites at Eider Pt. and Summer Bay.

One site which has been pinpointed is on the eastern point of the "South America" portion of Amaknak Island and is an example of the need for more definitely locating archaeological sites. This site is located near the base footing of the proposed Amaknak-Unalaska bridge. The site has been partially excavated in 1977 and preliminary findings indicate that it is one of the most significant such sites ever studied in the Aleutian Islands. Current plans call for modification to the proposed access ramp off the bridge to allow complete excavation and protection of the site. Many midden sites have been destroyed due to construction activity, particularly those associated with military war

construction. The Cultural Services Section of the Alaska Division of Parks estimates it will take approximately 10 man-months to accomplish a detailed archeological site mapping for the Unalaska area.

Russian influence is present in the Russian Orthodox Church, the oldest in the state, several small tree plantations, and ingrained in the names of many of the community's residents. Military influence is everywhere. Dilapidated buildings are found on every buildable piece of land in the community. Debris still scatters with the wind and flows with the tide. Thus, a community which had its origins in the fact that it was a safe harbor of refuge has, through history and continues today, to exist because of that natural feature. The future of the community and its primary economic function is directly tied to that safe harbor and the attractiveness of the area as a place for living and commerce.

C. ECONOMICS AND POPULATION

1. PRESENT ECONOMY. Unalaska's economy is currently almost totally dependent on the seafood processing industry. Other existing and potential sources of economic activity are: a water transport service/trans-shipment area; a regional service center for Southwest Alaska; a staging and supply area for outer Continental shelf petroleum development in the Bering Sea and Aleutian Islands areas; and a state and federal governmental center for implementation and management of the 200 mile fishery limit.

a. Composition of Employment. Employment data for Unalaska used in preparing this development plan was obtained from numerous sources. The primary source was that supplied by the Employment Security Division of the Alaska Department of Labor. This was supplemented by secondary information supplied by the Commercial Fisheries Entry Commission, the Alaska Department of Revenue, the Alaska Legislature, and Tryck, Nyman & Hayes' field interviews with employers located in the City of Unalaska.

Because labor force data presented by the Employment Security Division is based on insured employment, certain categories of employment are not included in Department of Labor statistics. The most important of these categories, with respect to Unalaska, is the self-employed category

which includes self-employed fishermen. Estimates are included in the Department's data for state government employees, who have not in the past actually been covered by unemployment insurance. The field interviews and other sources of data were used to arrive at estimates designed to quantify the true annual full-time equivalent employment picture in the community.

The portion of the local economy devoted to supplying goods and services to people outside the local area is called the "basic" portion of the economy; that portion of the local economy supplying goods and services to local people is called the "secondary" portion of the economy. The existence of the secondary portion of the economy is dependent on the basic portion, hence growth in the basic economy is essential to long-term healthy community growth. Because it is exceedingly difficult to reliably measure the actual dollars generated by a particular industry, number of jobs by industry type is the most commonly used measure of economic activity rather than the number of dollars.

Table 1 shows the average annual total employment in Unalaska by industry type for the year 1976, and the portion of the economy that is basic and secondary. A note of explanation should be made in understanding the use of this table, and comparing it, Table 2 and other data in this section. Table 1 is based on Alaska Department of Labor data, plus some fairly extensive field work by the consultant to arrive at the "true" employment picture in Unalaska. The Department of Labor data has some acknowledged shortcomings, such as not covering self-employed individuals and making only estimates of state and local government employment, therefore, there will be some discrepancy between Tables 1 and 2. The purpose of establishing the data in Table 1 is so as to derive basic and secondary employment figures, but the Department of Labor data is the only source of information available for comparing employment in Unalaska in 1976 with employment in other geographical areas and at other periods of time. Thus, although probably not presently a "true" employment picture, the Department of Labor data is the best available information for comparison purposes.

TABLE 1
Average Annual Employment
City of Unalaska
1976

<u>Industry Classification</u>	<u>Number</u>	<u>%</u>	<u>% Basic</u>	<u>Basic Number</u>	<u>Secondary Number</u>
Fishing	44	4.4	100	44	0
Mining	2	0.2	100	2	0
Contract Construction	0	0.0	--	--	--
Manufacture (1)	815	82.4	100	815	0
Transportation, Communi- cation & Public Utilities	16	1.6	37	6	10
Trade	29	2.9	21	6	23
Finance, Insurance & Real Estate	1	0.1	0	0	1
Service	25	2.5	0	0	25
Government:					
Federal	18	1.8	0	0	18
State	3	0.3	67	2	1
Local	<u>36</u>	<u>3.6</u>	<u>0</u>	<u>0</u>	<u>36</u>
TOTAL	989	100.0	89	875	114

(1) Includes seafood processing.

Sources:

- * Alaska Department of Labor, Employment Security Division
- * Commercial Fisheries Entry Commission
- * Tryck, Nyman & Hayes
- * Alaska Department of Revenue, Business License Section
- * Alaska Legislature, Legislative Affairs Agency, Finance Division

The most notable aspect of the Unalaska economy is the preponderance of employment in the manufacturing category, i.e. seafood processing. Since virtually all of the processed seafood products are exported for consumption outside the City, both the manufacturing and fishing industries are considered basic. Thus the ratio of basic to secondary jobs in Unalaska is 1.0:0.13. If stated as an "economic base multiplier" it is 1.13. Thus, for every one (1) job in the basic industries there are an additional 0.13 jobs in the secondary industries.

This is an extremely low multiplier, perhaps one of the lowest in Alaska. As a comparison, other fishing communities in Alaska commonly have multipliers of around 1.40; the state as a whole has a multiplier of 1.47; Anchorage's is 1.74; 2.7 is a common multiplier for communities nationally. The reasons for this very low figure for Unalaska will be discussed below, but the fundamental cause is the almost total reliance on transient labor to fill the jobs in the seafood processing industry in the community. Since the average transient laborer consumes little in the way of local goods and services there are comparatively few secondary jobs created to meet their needs.

A comparison of labor force data between Unalaska, the Aleutian Islands labor area, and the State of Alaska for the year 1976 is given in Table 2. It will be noted that, while there is some similarity of industry employment proportions between Unalaska and the Aleutian Islands area (which begins at Chignik and ends at Attu), both are considerably different from the state as a whole. The asterisks indicate withholding of information by the Department of Labor to comply with disclosure regulations, and may be considered for the use in this case as being a fraction of one percent (1%) for comparison purposes. The heavy federal governmental employment in the Aleutian District is due to the presence of several military installations none of which, however, are currently located in Unalaska.

b. Unemployment and Seasonality. Statistics for unemployment in the City of Unalaska in the year 1976 indicate a 10.6% annual unemployment average, with a 12.8% midwinter peak. Data for the Aleutian District indicates an average annual unemployment rate over the past several years of 7% to 8%, somewhat lower than the total state average of from 9% to 10%. As does the total state, Unalaska has a seasonal variation although timing of the season is different in Unalaska, as discussed below. As a matter of practicality, field interviews have determined that for most of the year there are jobs available with the seafood processors for anyone willing to work. In fact, the processors report frequently being in need of help and having difficulty finding locally available employees, even though there are residents out of work according to available data. Thus, employment, to the extent that people need income to support themselves and their families, appears not to be a problem.

Seasonality of employment in the City of Unalaska is rather high and in fact varies greatly even on a month to month basis. This is another result of the heavy dependence on seafood processing and the variability of that industry. All the other industries also tend to have a great deal of variation, although not to the extent of the processing industry.

TABLE 2

Nonagriculture Wage and Salary Employment Distribution
Unalaska, Aleutian Island Labor Area, and
State of Alaska
1976

<u>Industry Classification</u>	<u>Unalaska</u>	<u>Percent of Employment</u>	
		<u>Aleutian Islands</u>	<u>Alaska</u>
Mining	*	*	2.3
Contract Construction	0	8.9	17.7
Manufacturing	77.9	38.4	6.0
Transportation, Communi- cation & Public Utilities	*	3.5	9.2
Trade	4.9	2.7	16.1
Finance, Insurance & Real Estate	*	1.3	4.1
Service	*	3.7	16.2
Miscellaneous (fishing)	2.7	3.3	0.7
Government:			
Federal	3.0	24.9	10.5
State & Local	6.6	13.3	17.1
TOTAL:	100.0	100.0	100.0

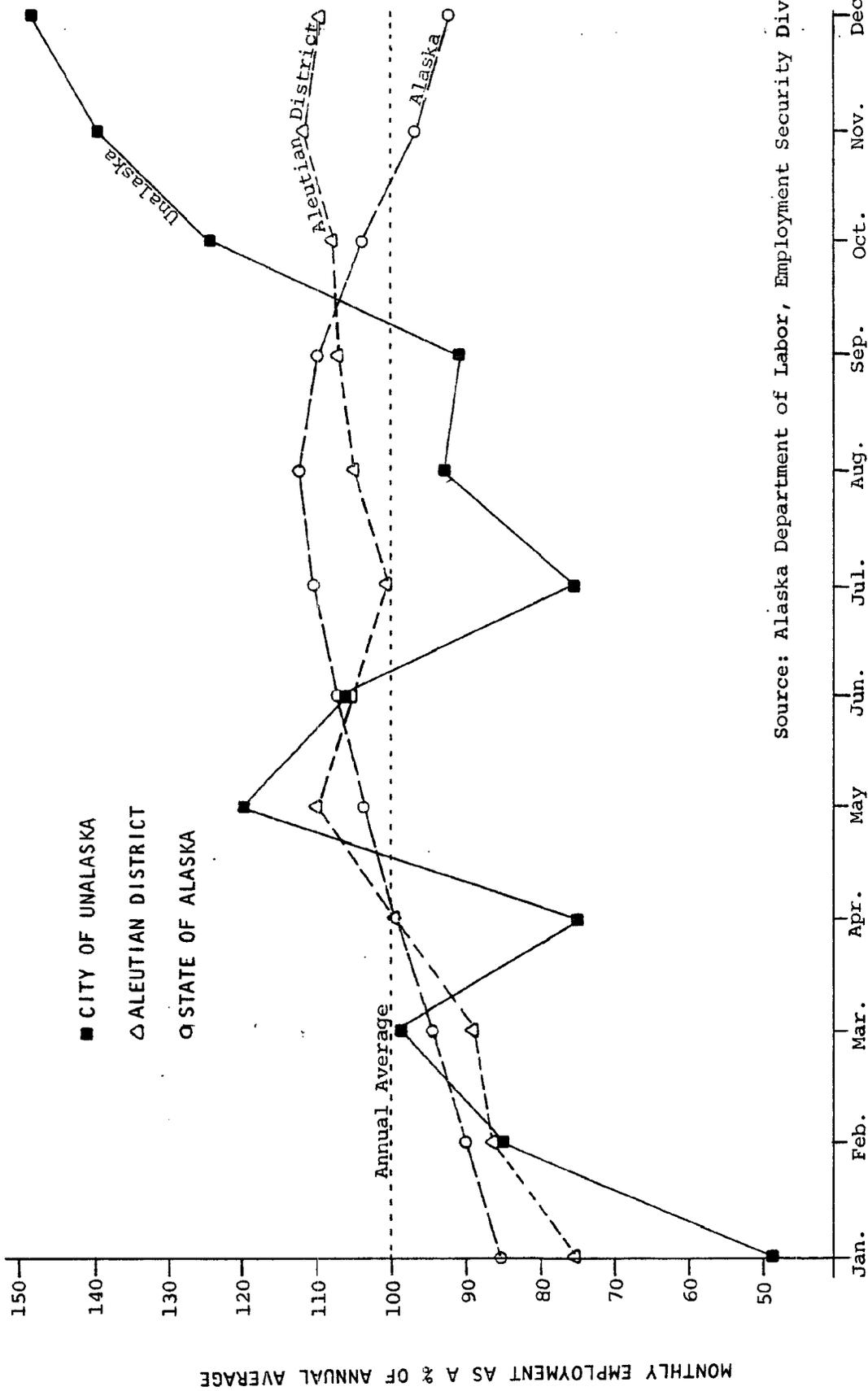
*Withheld to comply with disclosure regulations

Source: Alaska Department of Labor, Employment Security Division

The seasonality data for 1976, and discussions with seafood processors, indicate that currently the industry in Unalaska has a production year with two periods of heavy workload: a minor season in the late spring peaking in April and May and a major season in the early winter peaking in October and November. It will be noted from Figure 4, Seasonality of Employment, that in 1976 the seasonal employment ranged from 49% of the annual average to 147%, or a peak three times as high as the valley.

c. Recent Trends and Changes. The economy of Unalaska has been very dynamic over the last several years, changing rapidly in size, composition, and seasonality. The fundamental cause of these changes has been as a result of changes in the fishing industry, the processing end of which has been the economic mainstay of the Unalaska Community. The fishing industry is discussed in more detail below.

FIGURE 4
SEASONALITY OF EMPLOYMENT
1976



Source: Alaska Department of Labor, Employment Security Division

MONTH - 1976

Insured employment data is again the most valid and reliable information available for measuring the economy, particularly with regard to trends. The expansion of the Unalaska economy can be seen in the rapid increase, since 1970, in the average employment, as shown by the Average Total Employment Index illustrated in Figure 5. Between 1970 and 1976 there has been a continual expansion of employment to the extent that there was 379% more employment in 1976 than in 1970. By comparison, over the same time period, there has been an 84% increase in employment statewide, and a 45% increase in employment in the Aleutian District.

The increasing importance of Unalaska in the economy of the Aleutian Region is further evidenced by the proportion of regional employment that is provided in Unalaska. In 1970, Unalaska had 7% of the average annual number of jobs in the Aleutian District. This percentage has steadily increased until, in 1976, it had grown to 23% of the annual district average.

Composition of the Unalaska work force has also shown some noteworthy trends as indicated by Alaska Department of Labor data. There has been a proportionate decrease in the amount of labor force employed in the manufacturing (processing) industry, from an 86% average in the early 1970s to 78% in more recent years, and an increase in the government employment sector of the economy from 4% to 10% over the same time period. The wholesale and retail trade industry has remained relatively constant, proportionately, at approximately 5% of employment. The reverse is true of the Aleutian District as a whole, where government employment has shown a slight decrease in recent years, to approximately 40%, with a corresponding rise in manufacturing employment to 35%. Wholesale and retail trade has remained an approximately constant 6%. From the standpoint of Unalaska, it appears that despite the high current proportion of basic to secondary employment, the trend over recent years has been to lower this proportion within the City of Unalaska. Another way of describing the same phenomena is to say that Unalaska is becoming more economically similar to a typical urbanized community.

Trends with respect to seasonality of employment in Unalaska can also be seen, although there is a significant year to year variation. The Alaska Department of Labor has defined a Seasonality Index, which is the ratio of total man-months of employment in the six lowest months of the year to total man-months of employment in the six highest months. Thus, a seasonality index number of 0.0 would indicate 'complete' seasonality, while an index of 1.0 would indicate no seasonality at all. Using this Employment Seasonality Index, as indicated in Figure 6, it can be seen

FIGURE 5

INDEX OF AVERAGE
TOTAL EMPLOYMENT

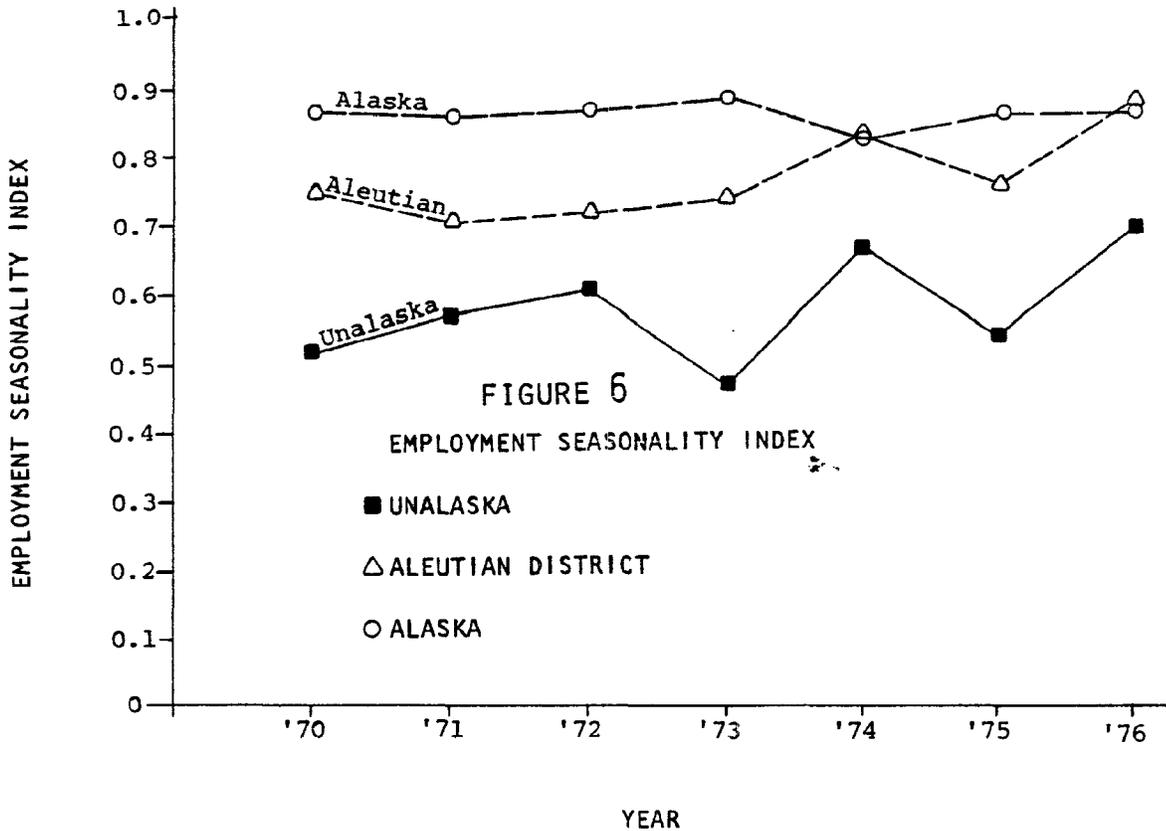
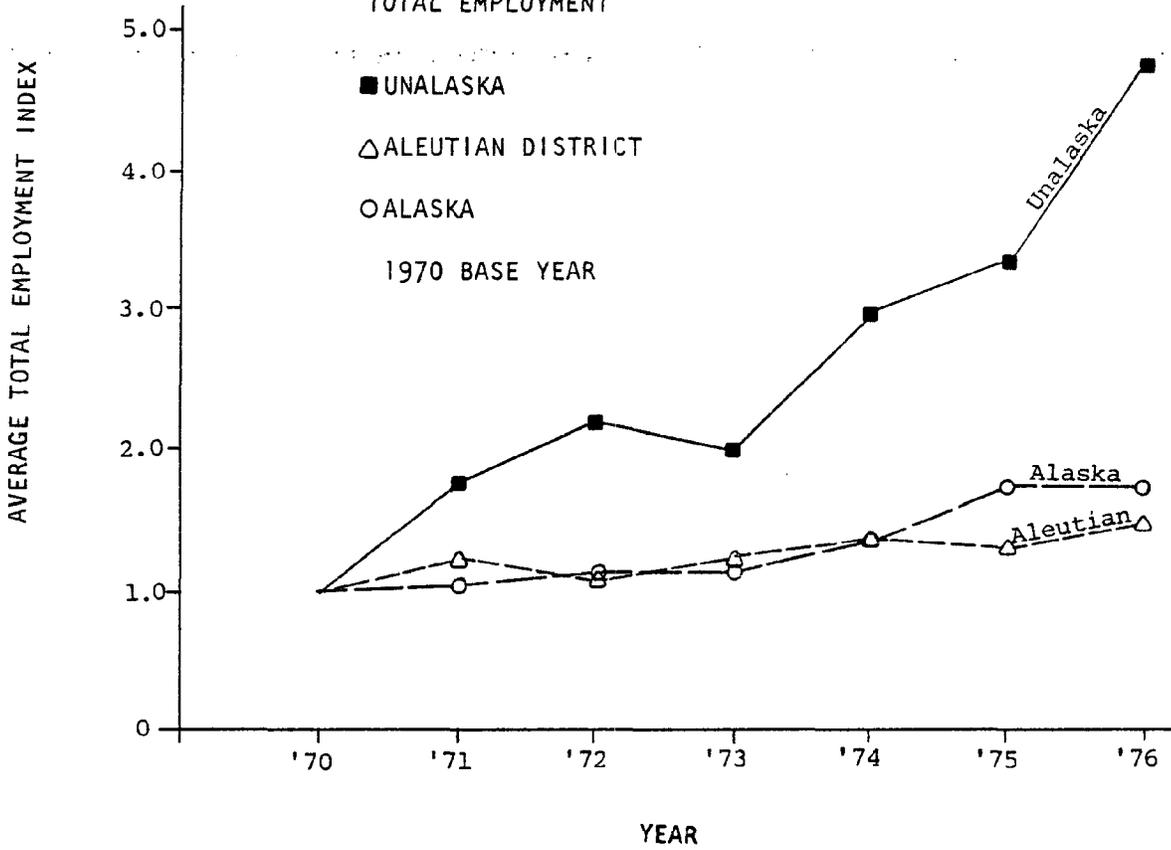


FIGURE 6

EMPLOYMENT SEASONALITY INDEX

that there has been a general overall increase in year around employment although, again, there have been some significant year to year variations. By comparison, the Aleutian District has been less seasonally dependent, while the state as a whole, except in 1973 and 1974, has had virtually no year to year variations despite the magnitude of the Pipeline construction impact on the economy.

In summary, recent trends have shown Unalaska to have a very rapidly expanding economy, increasingly becoming an economic center of activity in the district, yet trends of expanded job opportunities in non-processing employment seems to have kept its proportionate share with the expanding processing and governmental sectors of the economy. With regard to seasonality of employment, there seems to be a trend toward less seasonal dependency, despite a great deal of year to year variation.

2. POTENTIAL FOR ECONOMIC GROWTH. The City of Unalaska has both an extremely bright economic future and the potential ability to exert a great deal of control over the type of community which will develop as a result of expanded economic activity. Seafood processing, especially in the processing of bottomfish species, a staging and supply area for OCS development, a regional service center, a water transport service and trans-shipment area, and a state/federal center for dealing with the 200 mile limit enforcement support all have potential for inducing economic growth.

a. Fishing and Seafood Processing. While fishing in Unalaska dates back thousands of years to the original Aleut inhabitants, the modern seafood processing industry is a relatively recent arrival. The first modern seafood processing plant was established in Unalaska in 1962; by 1967 there were five processing plants, and by 1976 there were eight. In addition to the increasing number of plants there has been a growth in size of the plants, as evidenced by the steady growth of industry employment discussed above. At least one and possibly a second new processing facility is rumored to be under consideration before the 1978 fall season begins. Two existing plants are currently undergoing sizeable expansion in facilities.

The growth of Unalaska as a seafood processing center results from the growth of the Aleutian-Bering area as a domestic seafood producer, especially with regard to king crab and tanner crab. The tanner crab harvest particularly has exploded in recent years, increasing from 7 million pounds in 1975 to 22 million pounds in 1976 to an estimated 50 million pounds in 1977. The annual king crab harvest has exceeded 60 million pounds for the last few years, exhibiting a general growth trend since 1970.

Unalaska is the farthest west point in Alaska for land based seafood processing, although floating processors do go farther west during the season peaks. Fishermen's selection of processors to sell their catch is a complicated decision process, involving boat ownership, prices paid, timing of the season, and waiting line for unloading among other possible considerations. The usual geographic area for Unalaska processors to serve extends west to the end of the Aleutian Islands, southeast to the southern end of the Alaska Peninsula, northeast into Bristol Bay, and throughout the Bering Sea as far north as the Norton Sound, which opened in 1977 to crabbing for the first time.

While not all of western Alaska's domestic catch is processed in Unalaska, catch from throughout the geographical area is processed in Unalaska. Therefore, it is appropriate to examine data from this area as an indication of the potential market for Unalaska processing. The predominant western Alaska species caught and processed by the Alaska seafood industry are king crab, salmon, and the burgeoning tanner crab; other species are halibut, herring and shrimp, but these latter constituted only about 1% of the total western Alaska catch in 1975. Table 3 shows a ten year history of western Alaska seafood catch by both all nations and Alaska landings. The only American competitor for shellfish in recent years has been the Japanese for tanner crab. Passage of the 200 mile limit has placed almost all western Alaska shellfish harvest areas under American domain along with the potential for most of the bottomfish harvest areas.

Recent six-year trends in catch, price, and statewide significance of the western Alaska seafood industry are shown in Table 4. Most notable items are the gradual increase in king crab catch; the significant recent increase in tanner crab catch; the reduction and subsequent gradual increase in salmon catch; the significant price paid for all seafood species since 1973; and the increasing importance of western Alaska in the statewide fisheries. Inquiries to the Alaska Department of Fish and Game and the Alaska Department of Revenue as to processing volumes in Unalaska yielded no information, as their data is based on processing company and not geographical location. Compilation of this data into a format useful for community policy development purposes would be most helpful. However, some indication of the growth of Unalaska's importance as a processing port can be gleaned from the shared revenue for seafood landings, which experienced a steady growth from slightly under \$4000 in 1970 to \$80,000 in 1975, at which time at least 29% of the Western Alaska domestic shellfish landings were processed at Unalaska.

TABLE 3

Western Alaska Seafood Catch
Millions of Pounds

Year	All Nations		Alaska Landings		
	Ground fish(1)	Shell fish(4)	Ground fish	Shell fish	Salmon
1966	1,215	**	1	41	100
1967	2,035	**	3	45	48
1968	2,324	**	2	42	30
1969	2,789	167	2	37	70
1970	3,788	153	*	34	130
1971	4,877	129	*	50	76
1972	5,157	94	*	49	32
1973	4,646	89	*	53	24
1974	4,249	111	1	74	33
1975	**	99	1	76	47

* Less than 1 million lbs.

** Insufficient or unavailable data

- Source: (1) Demersal Fish and Shellfish Resources of the Eastern Bering Sea in the Baseline Year 1975, National Marine Fisheries Service
- (2) Alaska Regional Profiles, Southwest Region, AEIDC
- (3) Alaska Catch and Production, Alaska Department of Fish and Game
- (4) Derived from (1), (2) and (3)

Despite the impressive increases of seafood harvest and processing in recent years, the 124 million pound harvest of the Western District in 1975 pales to insignificance when compared to the over 4,000 million (4 billion) pound potential of the area within the United States 200 mile limit, an approximate 32-fold increase. As indicated in Table 3, foreign fishermen and processors have harvested this amount over the past several years, largely in the form of pollock, sole, flounder and herring. American fishermen and processors have, in the past, generally ignored these species, even when fishing within the 12-mile limit, in favor of the higher-valued salmon, shrimp and crab. Development of appropriate American technology and the availability of capital investment will undoubtedly take several years, but even conservative estimates foresee a doubling of the bottomfish harvest within the next five to ten years, with further significant increases possible beyond that time. Even this fairly rapid timetable may be accelerated if additional foreign investment and new technology advancement is made in the industry, as some evidence seems to indicate.

Unalaska is in an excellent position to be the prime location for any land-based processing of bottomfish that may occur. In addition to being an excellent harbor with respect to water depth and protection from weather, it is the year around port most centrally-located to the bottomfish area. The largest potential bottomfish area lies in a triangular location, with Unalaska as the apex of the triangle. This location is bounded by a boundary approximately going from Unalaska to Cape Newenham, thence to a point 400 miles east-northeast from Cape Newenham to the U.S. 200 mile limit, thence southeast to Unalaska.

There is currently considerable controversy over recent proposals by foreign-owned floating seafood processors to co-venture with American fishermen on catching and processing bottomfish. Because many of the domestic land-based processors, such as Whitney-Fidalgo Seafoods, Universal Seafoods, Dutch Harbor Seafoods, Vita Food Products and Amfac, are actually substantially owned or controlled by foreign corporations, the most important effect of the rival proposals is the number of jobs created for American fishermen and labor, the tax base provided by the land-based (or located) processors, and the secondary industries and jobs created to support the processing industry. The question of foreign vs. domestic processing and the resolution of current controversy will have a vital effect on the long term growth of Unalaska. This is an extremely important point and cannot be overly stressed.

Table 4

Western Alaska Catch and Value to Fishermen

Year	<u>Catch/Million lbs.</u>			<u>Price/\$ per lb.(1)</u>			<u>Percentage Total Alaska Value</u>			
	<u>King</u>	<u>Tanner</u>	<u>Salmon</u>	<u>King</u>	<u>Tanner</u>	<u>Salmon</u>	<u>King</u>	<u>Tanner</u>	<u>Salmon</u>	<u>Grand Total</u>
1970	31.9	1.5	129.8	.24	.09	.22	58	9	43	38
1971	49.9	0.2	75.7	.26	.10	.24	68	1	35	36
1972	48.8	0.1	31.5	.26	.11	.20	58	(2)	14	21
1973	52.3	0.5	23.6	.60	.17	.28	70	1	11	26
1974	62.5	5.6	32.9	.40	.21	.37	68	9	18	27
1975	67.5	7.1	46.7	.37	.13	.35	65	13	30	33

(1) Computed by dividing total value to total catch

(2) Less than 1 million lbs.

Source: Alaska Catch & Production, Alaska Dept. of Fish & Game

One of the more significant unknowns in the seafood processing industry at this time is the type of groundfish processing which will evolve as Americans get into catching and processing those species. Foreign fleets have successfully utilized both the "mother ship" concept and the combination "catch-processing" vessel rather than using shore-based processing facilities. While there are pollock, cod, flounder, perch, sablefish and other groundfish within 100 miles of Unalaska, the bulk of the potential catch is much further away. The ultimate resolution of this question will likewise have a significant effect on Unalaska's long term growth.

The fishing portion of the seafood industry has not been quite so much of a boon to the City of Unalaska as has the processing portion. Data on the number of people with commercial fishing permits listing Unalaska as their address in 1977 numbers 35. However, discussions with Unalaska residents indicates that only approximately 12 people actually derive their primary source of income from fishing. As 19 of the 35 vessels exceeded 50 feet in length, thereby requiring a crew, and since Department of Labor data indicates only

some 16 people in Unalaska in the fishing industry are covered by unemployment insurance (as would be crew members but not vessel owners), a judgmental estimate was made incorporating all the available information. Table 5 gives data on the fishery resource utilized, gear amounts and types, and area of fishing for each of the permit holders listing Unalaska as their address. It would be anticipated that, as the seafood industry increases in magnitude, the fishing portion would similarly increase, subject to a variety of technical, social and economic considerations.

In summary, Unalaska can probably expect very significant increases in the seafood processing industry within the next five to ten years, with proportionate increases in associated industries. A doubling within the next five years, and a tripling within the next ten seem to be reasonable expectations, according to the personnel of the Alaska Department of Fish and Game, with a good possibility of even greater increases. These two assumptions, admittedly conservative, have been utilized in subsequent economic forecasting presented later in this document. Supportive evidence to these assumptions is information recently received from Sea-Land Service Co., which expects Unalaska fish and shellfish landings to go from 210 million pounds in 1977 to 403 million pounds by 1980, including 60 million pounds of bottomfish.

TABLE 5
1977 Alaska Limited Entry Permit Holders
Listing an Unalaska Address

Pertinent Data					
<u>Type of Fishing</u>	<u>No. of Permits</u>	<u>Type of Gear</u>	<u>No. of Permits</u>	<u>Area</u>	<u>No. of Permits</u>
Halibut	9	Purse Seine	1	Statewide	33
Black Cod	1	Drift Gill Net	3	Peninsula-	
Dungeness Crab	3	Otter Trawl	2	Aleutians	3
King Crab	40	Beam Trawl	1	Dutch Harbor	24
Bottomfish	1	Long Line	9	Bering Sea	16
Shrimp	4	Pot	41	Bristol Bay	1
Salmon	4	Pot	19		
Tanner Crab	14	Other	1		
Other	1				
Total	77		77		77

Source: Alaska Limited Entry Commission

b. Oil and Gas Exploration and Development.

Offshore oil and gas exploration and development is expected to have some impact on Unalaska in the next five to ten years, but probably nowhere near the extent of the fisheries impact as discussed above. Unalaska is within 200 miles of the St. George basin, within 200 miles of the far eastern end of the Bristol Bay basin, and within 200 miles of most of the Aleutian Shelf (Shumagin Shelf) basin, which is south of Unalaska Island. Available petroleum quantity information on these areas is rather limited. The 200 mile distance is important as 200 miles is the currently acceptable limit for service and supply between the shoreside support base and offshore exploration and development activity.

The latest U.S. Department of Interior Outer Continental Shelf Oil and Gas lease schedule as it relates to Alaska was issued August 23, 1977, and contains the intended federal OCS lease sales through 1981. The St. George basin, the Aleutian Shelf basin, and the Bristol Bay basin, which are the areas which could have the most significant effect on Unalaska, are not included in the schedule. Those leases scheduled for offshore Alaska waters are:

Beaufort Sea, December 1979

Gulf of Alaska, June 1980

Kodiak, October 1980

Cook Inlet, March 1981

Bering-Norton, December 1981

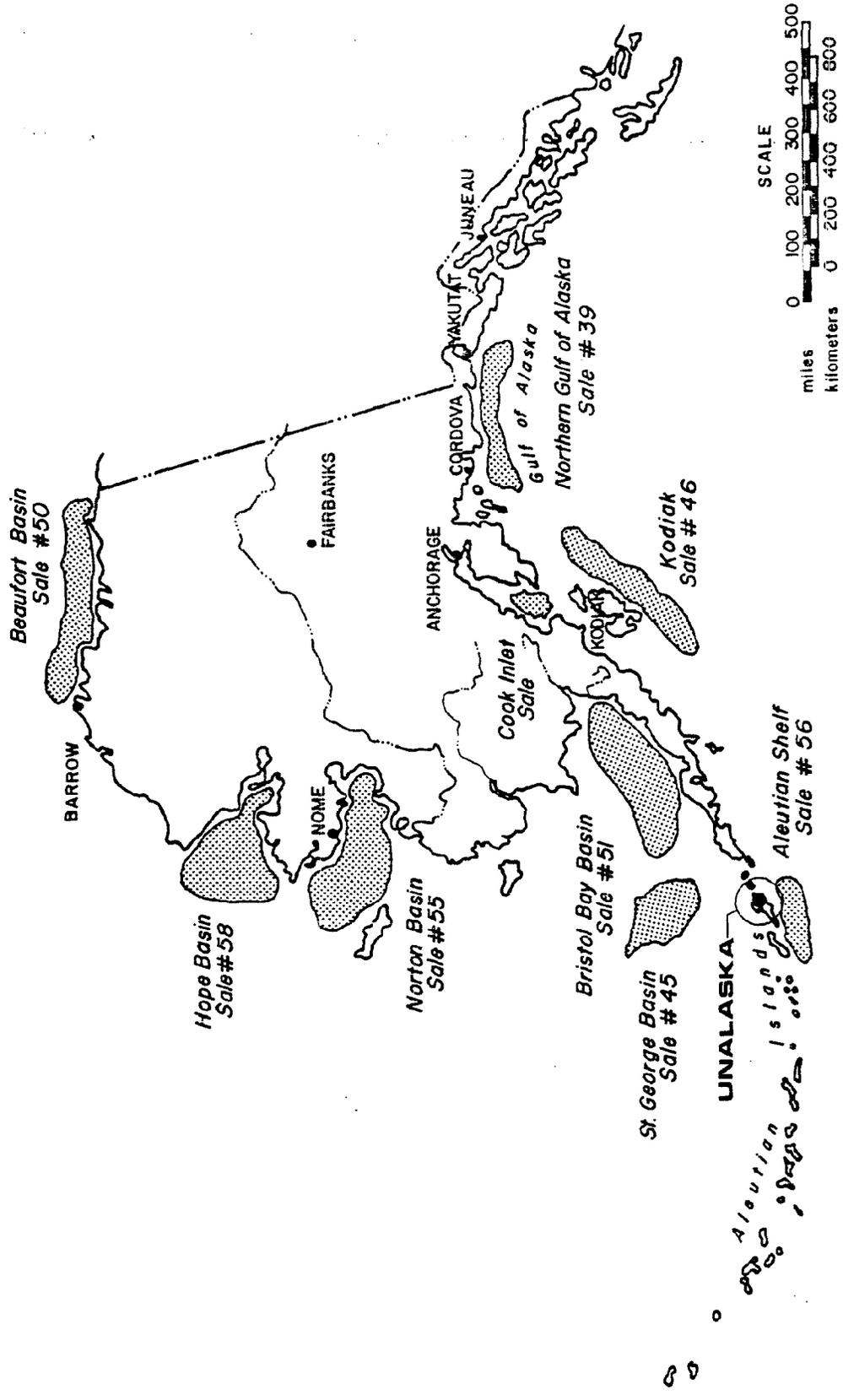
A map showing the approximate location of these areas is presented in Figure 7.

Some background discussion on OCS oil and gas development is appropriate. Offshore development has several phases, each of which has its own characteristics and potential for on-shore activities. These are described below.

- A. RECONNAISSANCE - The obtaining of seismic and other geotechnical information by companies interested in participating in the development. There is minimal on-shore impact from this activity. An occasional exploration boat will be seen in the area as it is resupplied, generally from existing shoreside facilities and very little, if any, employment will be generated locally by this phase.

FIGURE 7

**ALASKA OUTER CONTINENTAL SHELF
AREAS UNDER CONSIDERATION FOR LEASING**



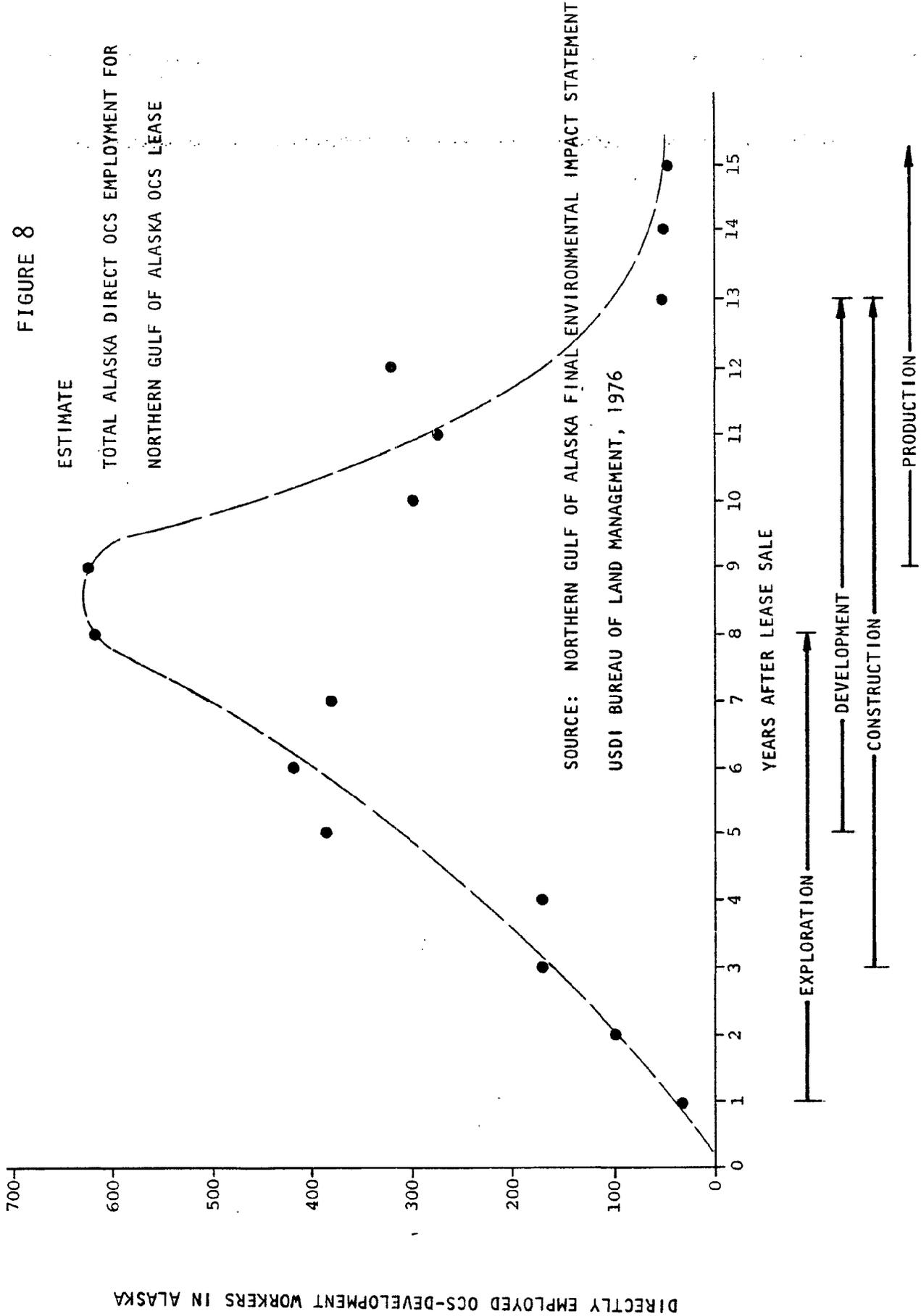
Source: Marine Service Bases for Offshore Oil Development,
Dept. of Community and Regional Affairs

- B. LEASE SALE - The selling, in closed bid competition, of tracts to the company (or groups of companies) which offer the highest acceptable lease price and royalty payment fee. No on-shore impact is associated with this phase.
- C. EXPLORATION - The drilling of exploratory wells in off-shore locations after the leases have been let. Establishment of one or more on-shore service bases to supply and support off-shore activities occurs at the beginning of this phase. There is moderate on-shore impact including some immigration of specialized labor.
- D. DEVELOPMENT - Construction of off-shore platforms for production of oil; construction of pipelines to bring the oil from the off-shore platforms to shoreside facilities; and the construction on-shore of processing facilities, tanker terminals, etc. Heaviest on-shore impact and activity is experienced in this phase, both in terms of facilities and immigration of labor.
- E. PRODUCTION - The flow of oil (and gas, if discovered), continuing for the life of the field, from the off-shore platforms through underwater pipelines to shore facilities. Only moderate impact is associated with this phase.

Each of these phases will encompass a differing time span and will produce differing impacts depending on a number of variables unique to each case. The most important of these variables is the anticipated lease area's petroleum potential. Using a specific example to illustrate how such a process may be enacted, Figure 8 is based on the Bureau of Land Management's Alaska OCS office data pertaining to the Northern Gulf of Alaska lease sale held in 1976. As pointed out in the Environmental Impact Statement for that particular sale, this scenario is only one of several likely possibilities; it is, however, the one BLM chose to use in their study of probable impacts.

Several points should be noted in this discussion. First, the data pertains to, one, specific estimate of one specific lease sale; it therefore cannot be considered "typical" in absolute terms; the intent in presenting the data here is to provide the reader with a specific "case history". Secondly, the data presented does not include secondary employment resulting from the primary employment, nor is the induced population of employment in this regard included in the data. These are highly divergent variables, extremely sensitive to the differing conditions existing at any particular time and place. Thirdly, the data applies

FIGURE 8
 ESTIMATE
 TOTAL ALASKA DIRECT OCS EMPLOYMENT FOR
 NORTHERN GULF OF ALASKA OCS LEASE



SOURCE: NORTHERN GULF OF ALASKA FINAL ENVIRONMENTAL IMPACT STATEMENT
 USDI BUREAU OF LAND MANAGEMENT, 1976

DIRECTLY EMPLOYED OCS-DEVELOPMENT WORKERS IN ALASKA

statewide and not to any specific location. No one location will receive all the impact from any lease sale, but the variables here too are highly divergent and dependent on the particulars of time and place. The intent here is to simply give the reader a feeling for the activities involved in OCS petroleum development.

The scheduling of OCS leases in Alaska, particularly in the Aleutian-Bering area, has been the subject of controversy and delay. For example, in 1975 the St. George basin was scheduled for lease in October, 1976. By November, 1976, however, the lease had been re-scheduled to March, 1977, but the January, 1977 and June, 1977 lease schedules did not even list it. Conflict with fisheries resources and weather extremes have been the reported reasons for questioning the desirability of leasing this area, hence assumedly the reasons for delay in its offering.

Harbor requirements for service bases differ greatly from those needed for oil terminals and their attendant supertankers. While both uses require protected harbors, which Unalaska certainly has, the requirements for service bases include a turning basin of at least 1500 feet in diameter, 24 foot water depth (below mean low low water), and approximately 20 acres available level land near the waterfront. Oil terminals, on the other hand, require turning basins of up to 4000 feet (and even more for the newer class of larger supertankers), harbor entrance depth of 70 feet, and up to 300 acres of level land available near the waterfront. Dutch Harbor and Captains Bay are both of insufficient size to accomodate supertankers, and neither would have 300 acres of nearby level land available. Captains Bay has the additional problem of a relatively shallow and narrow harbor entrance. Summers Bay and Nateekin Bay are both inadequate from the protection standpoint. While it would be possible to have a small oil terminal facility in, say, Captains Bay, examination of the various nearby basins indicates that there are other closer potential terminal sites which may be used.

The exploration phase of the OCS oil or gas fields would begin almost immediately after the lease sale is held. Should economical deposits be discovered, the development phase would begin immediately thereafter, but usually not before four to five years after the leasing of the tracts. For the reasons discussed above, it is unlikely that either an oil terminal or an LNG facility will be constructed anywhere in Unalaska Bay, even when the nearby areas mentioned above are finally leased. Therefore, no significant OCS impact, other than supply and service base development, is considered likely to take place in Unalaska.

Because of Unalaska's proximity to these potential development areas, and its excellent harbor, Unalaska will undoubtedly, however, be the site for a supply and service base for one or more phases of this development. As described above, service base installation is the first of several stages of on-shore development in the OCS process, and the one with the least potential local community impact. However, the service base development is not likely to take place until either the St. George, Aleutian Shelf, or Bristol Bay areas are leased, apparently not until sometime after 1981. It would appear, therefore, that no significant OCS-related impact is likely to occur in Unalaska prior to 1982, at the earliest. This is considerably later in time than had been considered probable prior to recent publishing of the revised leasing schedule. This does not mean, however, that the City of Unalaska should ignore, until 1981, the possibility that on-shore activity associated with OCS development will likely occur only after then. On the contrary, the fact that such on-shore development is extremely likely to occur coupled with the point that there is ample time to plan adequately for that activity is a situation of which the City should take advantage. Adequate planning in conjunction with the involved oil companies should be undertaken once the City has developed its long range land use plan and once a coastal zone management plan for the Aleutian Region has been developed and finally approved.

The Alaska Department of Community and Regional Affairs has produced two studies pertaining to supply base requirements in the northern Gulf of Alaska.* Assuming the level of exploratory effort near Unalaska is proportional to the ratio of estimated level of oil reserves between the Gulf of Alaska base and those areas which would be supplied from Unalaska as discussed above, the level of exploration effort out of Unalaska should be approximately 44% of the level of effort of the Gulf of Alaska. Using data from the two ADCRA studies, the resultant scenario indicates a two-berth supply base supporting 3 or 4 exploration rigs via 7 supply boats. This would create 34 supply base jobs, 70 jobs on boat crews, and 10 additional secondary jobs in the community (e.g. waitress, schoolteacher, etc.).

Experience to date from the supply base at Yakutat indicates the supply base jobs and the secondary jobs will be filled by residents, or people who become residents, and

*Supply Boat and Port Facility Scenario: OCS Sale No. 39 - Northern Gulf of Alaska and Marine Service Bases for Offshore Oil Development

the boat crew jobs will be filled by transients. It is assumed that resident job holders will have families, therefore, the population increase resulting from OCS exploration will be 132 residents and 70 non-residents. As the lease sale dates are still indefinite, this population impact is shown separately in Figure 10 below. The types of supply base jobs available for a "typical" crew are shown in Figure 9, taken from one of the above mentioned ADCRA studies.

c. Marine Service and Trans-shipment. Potential Unalaska development as a center for the servicing of marine vessels and as a transshipment center for marine freight have both been considered by numerous interested parties. For at least the past decade the preponderance of Unalaska shipping has consisted of petroleum products, largely for the refueling of transport vessels. Second in shipping importance for the same period has been that of raw and processed seafood, generally on the order of one-tenth of the petroleum product tonnage. Together, petroleum and seafood account for approximately 97% of the tonnage shipped through Unalaska over the last decade, although both are annually highly variable in amount and show little correlation with each other.

Increasing economic activity in the Aleutian-Bering area will probably mean some increasing activity in Unalaska as a service and transshipment point. Seafood and petroleum should continue to increase as seafood processing and shipping increase, most likely in direct proportion. It is questionable, however, if Unalaska will see significant increases in activity as a transshipment point for other goods, other than possibly those related to OCS development. The sparse Aleutian Islands population, the very great distances separating the various settlements, and the "open sea" conditions of waterways surrounding the islands precludes the "inland passage" type of shipping, which would require some sort of transshipment. A study is currently underway to examine the feasibility of a state-owned and operated "Kodiak-Aleutian Island" ferry system. Data and results from this study may serve to indicate Unalaska's future potential in this regard.

Increased mineral and petroleum development in northwest Alaska, partly as a result of activity by the several Native Corporations and the development of National Petroleum Reserve-Alaska (NPR-A) would greatly increase shipping in the sea lanes near Unalaska. Rather than change the nature of the past and current function of Unalaska in this respect, it is felt that what will occur is a repeat of the function Unalaska served in the development of the Prudhoe Bay facilities and the Alaska Pipeline construction. That is, Unalaska will serve as a refueling point and lay-over station for the ocean-going barge traffic as it passes through on the way to

FIGURE 9

OCS SHORESITE CREW--TYPICAL

	<u>Number</u>	<u>On Duty</u>
Manager	1	1
Bookkeeper	1	1
Warehouseman	1	1
Crane/Forklift Operator	2	1
Truck Driver	2	1
Longshoreman	3	2
Roustabout	3	2
Radio Operator	2	1
Mud and Cement Service	2	1
Fuel Service	2	1
Rental Tool Service	2	1
	—	—
Total:	21	12

NOTE: Four to six company administrative and technical people will likely have permanent responsibilities for the offshore work, but they will perform most of their duties either on the drilling vessel, or in a home office in Anchorage or some other city.

SOURCE: Marine Service Bases for Offshore Oil Development, ADCRA

the port of destination. Thus, rather than functioning as a major transshipment point, Unalaska would function primarily as a refueling and only occasionally as a restaging area.

Increasing interest has been evidenced in utilizing some of the former military facilities on Amaknak Island to service and repair marine vessels. The land and those facilities formerly used for this propose by the military have passed into ownership of the Ounalashka Native Corporation as a result of the ANCSA. While costs and conditions necessary to make redevelopment of this facility feasible require a more extensive study, it would seem that some trends in the fishing industry should be considered. Such a study is currently being initiated by the Ounalashka Native Corporation. While increased fishing will mean increased numbers of boats coming to Unalaska, the past and foreseeable future trends indicate that the boats will become larger and more complex. This type of boat requires very extensive facilities for overhaul, which presently tend to be found only in major shipyards such as exist in Seattle. Unknowns, such as the size and timing of construction of a small boat harbor, would also affect this feasibility.

In summary, at this time, it does not seem likely that, in the near future, there will be any significant impact on the Unalaska economy by the large scale development of either service or transshipment facilities, other than OCS-related development in the time frame discussed above. It is possible, however, that more detailed analysis, some of which are currently being undertaken or considered, will reveal that trends and changing conditions make either or both possibilities feasible.

d. Marine Resource Enforcement. Previous discussions have noted the economic effects that resource exploitation can directly have on Unalaska, i.e., the federal program for OCS development and the recently-enacted 200 mile limit on seafood processing. A related but separate occurrence is the development of Unalaska as a headquarters location for state and federal agency enforcement of laws and regulations pertaining to OCS and fishery resources.

At the state level the Department of Public Safety has prime enforcement jurisdiction in fisheries. The Division of Fish and Wildlife Protection will station a new motor patrol vessel, "Vigilant", at Dutch Harbor with plans under consideration to possibly station a second patrol vessel in Unalaska also. The lack of adequate housing in Unalaska has been an important factor in the delay in siting, as there will be a permanent crew of six (6) members plus families,

and one or two (1-2) state troopers plus families, who will require accommodations in conjunction with each patrol vessel.

Geographical jurisdictions of enforcement authority are still unsettled. While Alaska clearly has general enforcement authority within the three mile limit, Alaska Fish and Game enforcement officers have recently arrested violators beyond this limit; this authority beyond three miles is currently being tested in the courts. An additional concept, currently under discussion, is the mutual deputization of state and federal enforcement officers which would allow each to enforce federal and state laws in the other's respective jurisdiction. Given the very large enforcement area concerned, this approach could prove to be very efficient.

The federal agency responsible for enforcement within the 200 mile limit is the U.S. Coast Guard. With increased oil tanker traffic carrying Prudhoe Bay oil from the Alaska Pipeline to the lower 48 states, and increased enforcement activities associated with the 200 mile limit, the presence of the Coast Guard in Alaska is being sharply increased. Operational headquarters for the Coast Guard are located in Juneau, but the major enforcement manpower and facilities are located in Kodiak. The Coast Guard is viewing the Aleutian-Bering area as an important target area for enforcement. Plans are being developed to station three enforcement personnel permanently in Unalaska to oversee fish processing activities and the related catch vessels, with an additional two personnel anticipated to be needed once OCS oil related activities begin in the St. George basin or the Aleutian Shelf basin.

While no permanent stationing of Coast Guard vessels in Unalaska is currently anticipated, the Coast Guard is desirous of utilizing Dutch Harbor as a refueling and resupply base for enforcement vessels operating in the Aleutian and Bering areas. There are, however, two factors currently preventing this action: lack of marine diesel fuel available in large quantities for the smaller patrol vessels; and the presently inadequate airport runway at Dutch Harbor which, according to the Coast Guard, does not permit their use of C-130 and C-135 aircraft at this field for supply activities. While the former shortcoming is probably easily remedied, the problem of runway width and length is more difficult to solve. The Alaska Division of Aviation has in the past considered extension of the runway at the Dutch Harbor Airport, but extension has been deleted from the State five year airport improvement plan. Serious problems with regard to topographical configuration on the site, questionable technological feasibility, costs associated with runway extension to the north, and airport ownership questions were cited by the Division as reasons for the deletion.

There is currently considerable controversy as noted surrounding proposals by foreign floating seafood processors to co-venture with American fishermen on catching and processing bottomfish. Because many of the domestic land-based processors, such as Whitney-Fidalgo Seafoods, Universal Seafoods, Dutch Harbor Seafoods, Vita Food Products and Amfac, are actually substantially owned by foreign corporations, the most important consideration of the rival proposals is the number of jobs created for American labor, the tax base provided by the land-based (or located) processors, and the secondary industry created to support the processing industry. The question of foreign vs. domestic processing is one which will have a vital effect on the long term growth of Unalaska.

Unalaska's geographical location and excellent harbor make it very suitable for locating enforcement agencies dealing with the impact of development of marine resources, and some of this agency location is scheduled to take place in Unalaska. Additional agency location in Unalaska is possible, but will be affected by the availability of suitable housing and airport upgrading.

e. Regional Service Center and Other Potential.
The likelihood of major economic impacts on Unalaska as a result of its evolution as a regional service center seem unlikely at this time. The major population centers in the Aleutian region are the military bases further west on the chain; the communities of Sand Point, King Cove and Cold Bay to the east; and St. Paul and St. George on the Pribiloff Islands to the north. The military provides the majority of its own support and services for their bases, and the other communities, because of communication links and geographic location, are unlikely to utilize Unalaska facilities to any appreciable extent. While Unalaska may serve some of the smaller nearby communities, such as Akutan, it does not appear likely that this would result in any major economic impact.

Development in Unalaska of a tourist/recreation industry has been considered as a possibility. Here also particular tourist industry expertise is required to fully explore the potential, but it does not appear that there will be a significant economic impact due to development of tourism over the next few years. Some possible attributes for tourist attraction would be the fishing and the former Dutch Harbor military base facilities. However, inclement and variable weather makes sport fishing attractiveness questionable on any large scale, and deterioration and civilian redevelopment of the former military base erodes that attribute as an item of major consideration.

One possible alternative in the development of the tourist industry would involve not just Unalaska, but the entire Aleutian region. This alternative would be to develop an archaeological-historical tour of important sites of both the unique Aleut culture and the World War II military sites throughout the Aleutian area. While this type of tour would probably not ever have great mass appeal, and would certainly be highly seasonal, it may still be economically viable. It could serve as a notable industry in the region. Certainly a great deal of preparation would have to take place throughout the region prior to the development of such a tour, thus it does not appear likely to occur in the near future and, because of the magnitude of other developments, would not constitute a rival major industry for Unalaska. Such was the case with Alaska Airlines sponsored tours to Russia in the early 1970's.

In summary, while there will probably be some minor increases in both the formation of a regional service center and the number of tourists visiting Unalaska, there does not appear to be any particular reason to anticipate major changes in the status of either of these economic activities.

One additional aspect of future economic development in Unalaska needs consideration. The Ounalashka Native Corporation, headquartered in Unalaska will, when conveyance processes are completed, be the largest private land owner in Unalaska. Much of the land within the City held by the Corporation is located on Amaknak Island, including the deactivated Naval Station. Land in other areas remote from the City has known resource development potential. Future plans of the Corporation for the use of these lands or the possible development of any of the resource potentials is relatively unknown. These plans are considered proprietary by the Corporation, are not generally public knowledge, and are unknown to the City or its planning consultant in spite of efforts to obtain them. It is safe to assume, however, that these lands, the usable facilities on them and any economically developable natural resource potentials proven to exist will at some point in time be utilized and exploited as the Corporation is a profit-making entity under the provisions of the ANCSA.

When the Corporation's plans are made known, every effort should be made by the City to assess their impact upon the City and appropriate changes in the pojections here presented should be made. The Native Corporation, as a creation of the ANCSA, is somewhat unique in the American free enterprise system. It is, however, a private company and in this regard should be accorded no more or less status in its community than any other such corporation. As the largest private landowner in the community, however, Ounalashka, Inc. has a significant interest in the workings of local

government and, respectively, the local municipality has a keen interest in this landowner's future plans. Efforts should be initiated to develop more meaningful lines of communication between the municipal government and the Corporation in order that their respective planning may be, to the maximum extent possible, complimentary.

In summary, the prospects for continued and expanded economic growth in Unalaska are excellent but tied both directly and indirectly to the seafood harvesting and processing industries. Some economic gain is forecast in association with outer continental shelf oil and gas exploration and development but not in any measurable degree before the 1980's. The heavy dependence upon the fishery and processing industries will mean that Unalaska's economy will continue to be almost totally export in nature. Thus, local economic benefit will have to be derived from resident jobs in the basic industries and from jobs and sales of goods and services in the secondary support industries that relate to fishery and processing activities. There appears to be little impetus or opportunity to change this composition, and the economic "health" of the Unalaska community will be directly affected by the status of the two prime industries. The City of Unalaska will have to continually be abreast of forces and changes in the fishery and seafood processing segments for signals as to what will happen locally. Effective communications and relations with the Unalaska based processing plants should be a key element in the City's long range economic development program. It is not possible, given the void in knowledge outlined above, to assess or predict the possible impact on the local economy of the local Native Corporation's use of its land or its development endeavors.

3. PROJECTIONS. The basis of any Community Development Plan should be sound projections of economic growth and population in the community followed by translation of these projections into needs, services, facilities and programs for the future. These projections and translations should be realistic and reflective of community desires as expressed by goals and objectives. Following are projections of economic growth, expressed in terms of future employment and population for Unalaska. Other projections for housing, education demands and other community facilities are discussed in the appropriate section of the Development Plan portion of this report.

The time frame, or target date, of these projections is 1987, ten years. However, extreme difficulty was experienced in developing reliable projections beyond 1982, or five years. This results from the many unknowns and variables present in Unalaska with respect to future economic development, meeting of transportation needs, federal and state policy with respect to fishery and other resource potentials and

the extreme dependence of the Unalaska economy on the export industry. Additionally, it is considered unwise to project economic conditions and population in hard terms beyond five years, and that principal is evident in this instance. Unalaska is a dynamic community in the sense that it is presently in a period of extreme economic transition and fluidity. Whether or not much or little of the new labor in the processing industry becomes resident in the City or continues the historical pattern of being transient is the key factor in the degree of population growth that will be experienced. Despite the insight into the Unalaska area economy given by the knowledge outlined above, nothing reliably is known about the types of job skills that are or are not available in Unalaska, about the income level of the populace or what the possible impact of Regional or Village Native Corporation programs or development might be upon the future of the City or area economy. It is safe to assume, however, that as new job opportunities develop requiring job skills not obtainable locally or in which local residents have no interest, labor with those skills will migrate to the area to meet the demand.

a. Methodology. There are four basic methodologies for forecasting population growth: (1) projection based on historical birth and death rates; (2) fitting appropriate mathematical curves to historical data and extrapolating future probabilities; (3) assuming a proportionate share of a larger regional growth where that growth has been estimated; (4) and basing future population on size and type of forecasted employment.

Most of these methods have significant drawbacks when applied to Alaska in general, and Unalaska in particular. Significant migration, such as occurs in most parts of Alaska, usually makes natural population change an inappropriate base for forecasting in Alaska. The fitting of mathematical curves ignores significant population-generating or reducing events that may or may not have taken place in the past, but are expected to occur in the future. Assigning Unalaska a proportional share of the Aleutian Regional population, or a proportion of the state population, is also not a viable approach as local developments can not be properly accounted for in this approach. As indicated by previous discussions concerning composition of employment, Unalaska is not typical of either the state or the region, hence population changes in either of the larger areas do not necessarily result in changes in Unalaska population. Information regarding reasons for past population fluctuations, as indicated in Figure 10, is unavailable, hence no analysis can be made. Results of a 1977 census were unavailable at the initial time of this writing. Subsequent analysis of this census indicated no reason to change any of the observations and conclusions stated herein; Appendix I shows data taken from the 1977 census.

The method most widely used in Alaskan studies is to forecast the type and amount of employment likely to occur in a community, then assign population based on this employment. Employment as a basis for population projection has shown itself to be a generally accurate forecasting tool. Analysis of statewide population for the last century shows that there have been two basic trends: from 1880 until 1939, when the annual population growth rate statewide was 1.35%, and from 1939 to the present, when the rate was 4.4%. The Alaska Pipeline construction period shows a significant deviation from this latter trend; however, the rate should move closer to the 4.4% now that construction is completed. The discussions below indicate the type of employment anticipated in Unalaska over the next decade, and the population changes and re-composition resulting from this employment and other factors. From these population forecasts come the basis for projecting school enrollments, housing needs, and other community requirements.

b. Employment Projections. Certain assumptions can be made utilizing information presented in the previous sections. The three most significant variables involved are: the growth of the seafood processing industry in Unalaska, the proportion of secondary workers who take up residency in Unalaska, and the proportion of secondary jobs to basic jobs as the population and economy grows. Because of the rapid changes and uncertain future in Unalaska, due to the evolution of fishing, fish processing and offshore oil development, it is felt that projections beyond a ten year time frame would merely be an exercise in mathematical manipulation and not be useful in guiding decisions.

THE ECONOMIC ASSUMPTIONS LISTED BELOW RESULT IN THREE GROWTH "SCENARIOS", REPRESENTING A RANGE OF POSSIBILITIES WITHIN WHICH DEVELOPMENT IS LIKELY TO OCCUR IN UNALASKA. NONE OF THESE SCENARIOS IS PARTICULARLY THE "MOST LIKELY" ONE: THEY ARE INTENDED TO INDICATE A POSSIBLE RANGE OF ALTERNATIVES OF BOTH VARIABLES AND RESULTING POPULATION COMPOSITIONS.

ASSUMPTIONS

1. *The overwhelmingly predominant portion of the basic sector of the Unalaska economy will continue to be the seafood processing industry. Employment in associated industries, such as fishing and portions of the transportation and trade industries, will be proportional to the growth of the seafood processing industry.*

2. *The domestic seafood processing industry in the Bering-Aleutian area will at least double its 1976 domestic seafood production by 1982, primarily due to increases in tanner and other crab catches. By 1987 the industry will be at least triple its 1976 domestic production, almost wholly due to increases in bottomfish processing.*
3. *Unalaska will maintain or increase its current proportionate share of the land-based Bering - Aleutian seafood processing industry.*
4. *The leasing of offshore petroleum development tracts in the Aleutian, Saint George or Bristol Bay areas will result in the development of a service base facility in Unalaska. No tanker terminal or LNG terminal will be constructed anywhere in Unalaska Bay. Approximately half of the service base personnel will become residents.*
5. *Each job filled by a new Unalaska resident will result in two additional family members (for a total of three) who are also Unalaska residents; transient employees will have no family members residing in Unalaska.*
6. *The following additional assumptions apply to the "low growth" scenario.*
 - a. *Seafood processing employment will double by 1982 and triple by 1987.*
 - b. *Seafood processing labor will continue to be transient.*
 - c. *As Unalaska grows, the base employment multiplier will increase from 1.13 in 1976 to 1.2 in 1982 and 1.25 in 1987.*
 - d. *Employment in the secondary sector of the economy will maintain its current proportion of transients to residents.*
 - e. *Ten percent of the new employees in the non-processing basic sector of the economy will become residents.*
7. *The following additional assumptions apply to the "moderate growth" scenario:*
 - a. *Seafood processing employment will double by 1982 and triple by 1987.*
 - b. *Half of the new seafood processing labor will become residents due to greater attractiveness of industry working conditions and increased urban amenities in Unalaska.*
 - c. *The economic base multiplier will be 1.3 in 1982 and 1.4 in 1987.*

- d. *Employment in the secondary sector of the economy will maintain its current proportion of transients to residents.*
 - e. *Half (fifty percent) of the new employees in the non-processing basic sector of the economy will become residents.*
8. *The following additional assumptions apply to the "high growth" scenario:*
- a. *The seafood processing industry in Unalaska will be three times its 1976 level by 1982, and five times the 1976 level by 1987 due to both Unalaska performing a greater share of the processing in the Aleutian - Bering region and a more rapid domestic involvement in the bottomfish catch and processing industry than assumed above.*
 - b. *The economic base multiplier will become 1.4 in 1982 and 1.6 in 1987.*
 - c. *Two thirds of the new employees in seafood processing labor and the non-processing basic sectors of employment will become residents, reflecting a decline in seasonality and a greater degree of urban amenities available in the community.*
 - d. *Ninety percent of the new employees in the secondary sector of the economy will become residents.*

c. Population Forecasts. It will be noted from the previous section that projections for residential population will vary widely, depending heavily on both the number of basic sector jobs and the proportion of those jobs filled by residents of Unalaska. Table 6 below indicates the number of jobs in the basic and secondary sectors by resident and non-resident under the various scenarios, and the total resident and non-resident populations.

Table 6 illustrates the application of the three scenarios to 1977 current population and employment data. Assume a 1977 population of 504 residents and 821 non-residents (seafood processing transient labor force) for a combined total of 1,325, the three scenarios result in a "low", "moderate" and "high" population of 2,986, 4,249, and 7,782 respectively for the year 1982. Similar ranges result when the scenarios are applied to the year 1987. Particular note should be made of the drastic change that occurs from one scenario to the next with respect to the resident - non-resident composition of the population. Figure 10 illustrates the projections graphically.

TABLE 6

City of Unalaska Projected Population and Employment
1982 & 1987

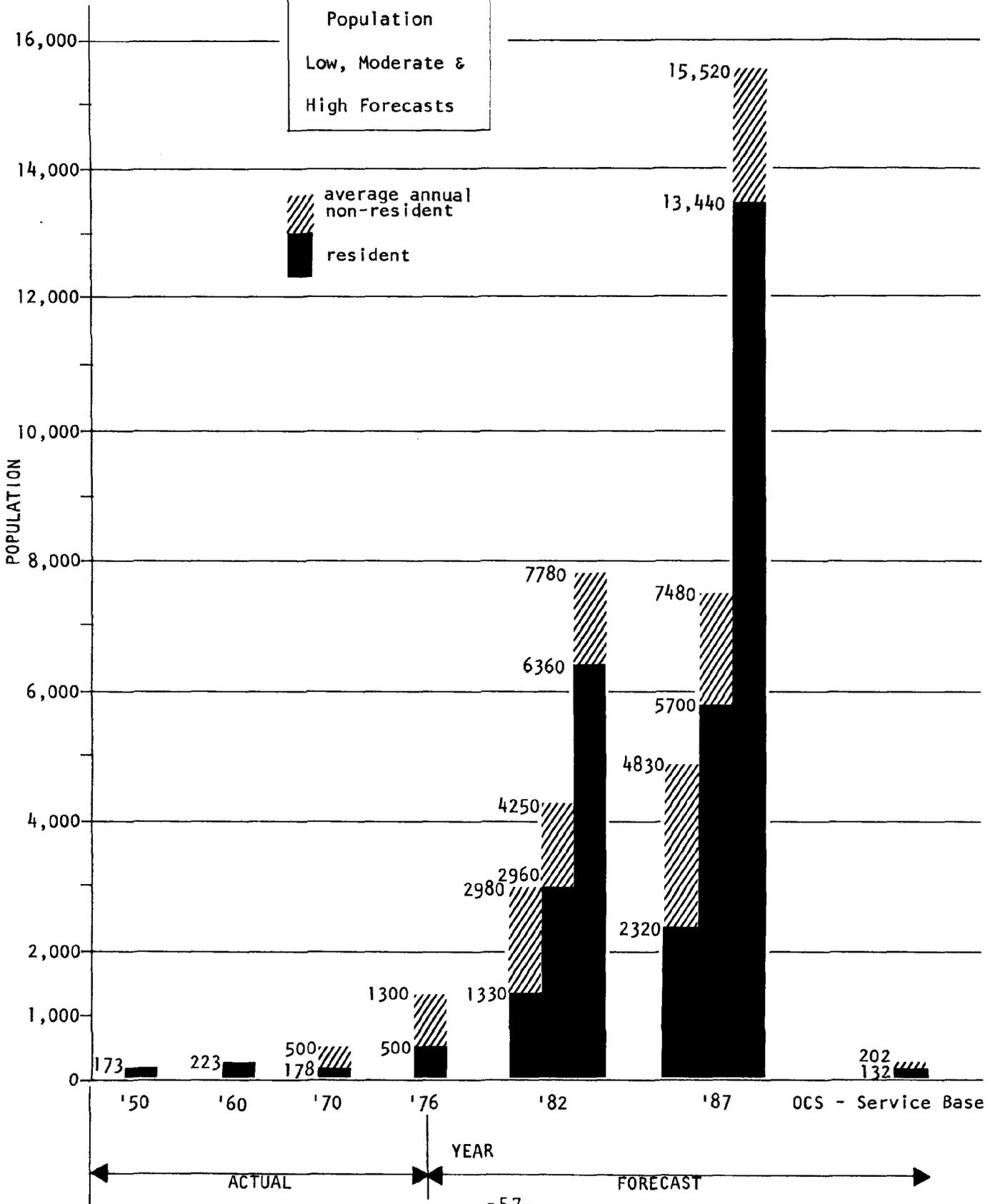
	1976	1982			1987		
		Low	Mod- erate	High	Low	Mod- erate	High
<u>Residents:</u>							
Basic Sector Employment	72	148	545	1,292	223	1,019	2,512
Secondary Sector Employment	<u>96</u>	<u>295</u>	<u>442</u>	<u>827</u>	<u>551</u>	<u>882</u>	<u>1,969</u>
Subtotal:	168	443	987	2,119	774	1,901	4,481
<u>Non-Residents:</u>							
Basic Sector Employment	803	1,602	1,205	1,333	2,402	1,606	1,863
Secondary Sector Employment	<u>18</u>	<u>55</u>	<u>83</u>	<u>92</u>	<u>105</u>	<u>168</u>	<u>219</u>
Subtotal:	821	1,657	1,288	1,425	2,507	1,774	2,082
Basic Employment:	875	1,750	1,750	2,625	2,625	2,625	4,375
Secondary Employment:	<u>114</u>	<u>350</u>	<u>525</u>	<u>919</u>	<u>656</u>	<u>1,050</u>	<u>2,188</u>
Total Employment:	989	2,100	2,275	3,544	3,281	3,675	6,563
Residents:	504	1,329	2,961	6,357	2,322	5,703	13,443
Non-Residents:	<u>821</u>	<u>1,657</u>	<u>1,288</u>	<u>1,425</u>	<u>2,507</u>	<u>1,774</u>	<u>2,082</u>
Total Population:	1,325	2,986	4,249	7,782	4,829	7,477	15,525

Source: Tryck, Nyman & Hayes, September, 1977.

FIGURE 10

PRELIMINARY DRAFT

City of Unalaska
Population
Low, Moderate &
High Forecasts



Caution is noted not to take the projections as "absolute". Neither the "low", "moderate" or "high" projection is considered the "most likely". Forecasting a "most likely" population for Unalaska is an extremely difficult undertaking and risky at best because of the major policy determinations which have yet to be made. As discussed above, the issue of shore-based vs. ocean seafood processing will determine the magnitude of Unalaska's growth, with at least an initial determination being subject to current negotiations. From this perspective, it appears that either the "low" scenario or the "high" scenario will take place, and not the "moderate" scenario. However, if the "high" scenario does take place, it may come about slower than anticipated, thus the ten year (1987) actual condition may fall between the "moderate" scenario and the "higher" scenario numbers. The closer the actual conditions are to one of the scenarios, the closer the population will be to that population figure resulting from application of the assumptions in that particular scenario.

D. UNALASKA COASTAL ZONE

1. BACKGROUND. Concern with development in coastal areas was one of the facets of the environmental movement of the 1960's and early 1970's. Burgeoning population and offshore resource development in the coastal areas of the nation, together with many instances of lack of desire or ability for adequate local control, resulted in the issue being carried to state and national policy levels. Passage of the federal Coastal Zone Management Act of 1972 (CZMA) implemented the focus of special attention on coastal areas by virtually every coastal state in the nation.

The federal CZMA held out two incentives to states to pass a CZM Act of their own. First was the offer of federal funds for planning purposes (Sec. 305 grants), with the promise of implementation funds upon federal approval of a state act (Sec. 306 grants). Second was the promise of federal agency compliance with a state's approved CMZ act "to the maximum extent practicable", under Sec. 307 of the CZMA. Further amendments to the Act in 1976 added the incentives of grants and loans for energy-related impacts (Sec. 308), grants for interstate cooperation (Sec. 309), and the offer of funding for research and training programs (Sec. 310).

It was the feeling of many state and local officials, at the time of passage of the CZMA of 1972, that there was a

definite implication on the part of Congress that those states which did not embark on their own coastal zone management program would find the federal government implementing one for them. While this imposition of federal authority was not contained in the language of the Act, it was, nevertheless, a motivator to state action, and is a solid concern for local municipalities and the affected states.

The State of Alaska began to draft its CZM proposal in late 1974, with the actual introduction of a bill as one of the first endeavors in the 1975 session of the State Legislature. This piece of legislation embodied the concept of very strong state administrative control over the coastal areas, and generated a great deal of controversy and opposition, much of it from local governments along the coasts. Subsequent proposals and other pieces of legislation on the same subject did nothing to quell what became a public furor. The State Legislature created a CZM interim committee which held numerous public hearings on the issue throughout the state's coastal areas during the summer and fall of 1975. In 1976, other CZM bills were introduced, but the only legislation to pass was a resolution creating a joint Legislature-Administration interim committee whose purpose was to present a proposal to the Legislature in 1977. This joint committee carried out its assigned task, and introduced Senate Bill 220 and companion bill House Bill 342 in March of 1977. HB 342 passed the Legislature in the form of CCS SCS CSHB 342 in May of 1977 and was signed into law by the Governor on June 4, 1977, as Chapter 84 of the Session Laws of Alaska, 1977.

One of the most significant differences between the original state CZM legislation and that finally enacted into law is the change from a state-implemented program to what is, essentially, a local government-implemented program. The law as enacted requires that nine of the sixteen members of the Coastal Policy Council, who design the CZM program policies, must be elected officials of local government. Secondly, the coastal management districts are mandated to follow municipal boundaries, and the municipality is responsible for developing and implementing the district plan. Local governments, and their citizens, can thus be sure that their views will be very strongly considered at both the overall policy making stage and the local program implementation stage.

Another potentially very important provision of Alaska's Coastal Management Act is the compliance provision for state agencies. As discussed above, Sec. 307 of the CZMA requires Federal agencies to conduct their activities directly affecting the coastal zone in such a way as to be ". . . to the maximum extent practicable, consistent with approved state management programs." In Alaska's law, the compliance provisions are a

little more explicit. Sec. 46.35.100(a) mandates state agencies to "administer land and water use regulations in conformity with district coastal management programs". Sec. 46.35.100(d)(Z), however, says that in any agency-district dispute, the dispute shall be resolved in favor of the agency if the agency is acting consistently with statutes and regulations. Even though Sec. 46.35.200 requires stage agencies to review their regulations and procedures for compliance with the program, there has been enough experience with governmental agencies, at both the state and federal levels, to warrant a degree of skepticism as to how much this compliance will actually be put into effect. It does give local governments more authority than they had previously, however, so every attempt should be made to utilize this potential control device.

2. CURRENT STATUS OF COASTAL MANAGEMENT IN ALASKA.

Chapter 84 of the Alaska 1977 Session Laws, the Alaska Coastal Management Act of 1977, has as its focus the establishment of an Alaska Coastal Policy Council. This Council, composed of nine elected officials of municipal government selected by the Governor and seven State Department heads, has as its charge the adoption of guidelines and standards for Alaska's Coastal Management Program, which must be approved by the Legislature to become effective. These guidelines and standards are to be followed by Coastal Management Districts in preparing their own individual programs.

The individual Districts are to prepare their programs and submit them to the Council for approval; upon Council approval they are presented to the Legislature for approval. The Districts are required by law to have an approved coastal management program; non-compliance with this law will result in enforcement of the law by state superior court. No specific penalties for non-compliance are specified in the Alaska Coastal Management Act.

The Alaska Coastal Policy Council has been appointed and is currently working towards initiation of the guidelines and standards, which must be submitted to the Legislature not later than the 10th day of the 1978 session. The Legislature is expected to carefully review the proposals prior to adoption. The net result of this preparation and review process is that it will probably be April or May of 1978 before specific criteria for developing District Coastal Management Programs is available.

3. HISTORY OF PLANNING IN THE UNALASKA COASTAL ZONE AREA.

Land use planning in a modern sense has been accomplished only on a sporadic basis in Unalaska. Certainly the earliest planning was done by the original Aleut inhabitants who located the early native village at Unalaska on the north side of the island since it affords greater protection from

storms than do southerly exposures, a situation common throughout the Aleutian Islands. In its most basic form this was implementation of a planning decision. Recent planning in Unalaska is manifested in two Community Development Plans, one prepared in 1967, the other in 1970, and a series of study efforts related to implementation of improvements to public facilities and utilities including sanitary sewers, water supply and distribution, dock facilities, a small boat harbor and a bridge linking Amaknak Island with the Unalaska mainland. Additionally, the City has an adopted zoning ordinance with a zoning district map and supporting text provisions, although the ordinance is somewhat out of date.

The planning relative to public improvements has, for the most part, been implemented. The City's water supply and distribution system has just undergone a major upgrading and renovation. Completed studies relative to a needed link between Unalaska proper and Amaknak Island have led to finalization of plans for a bridge across Iliuliuk Harbor entrance. Engineering study on development of a sanitary sewer collection and treatment system is in process, the "plan of study" phase having been completed, with construction of new collection and treatment facilities possible within three years.

That planning which has had the greatest impact upon the City of Unalaska, however, is that accomplished by the U.S. Army and U.S. Navy in the early stages of World War II. Then called Dutch Harbor, Unalaska was the site of the Dutch Harbor Naval Air Base and the U.S. Army's Ft. Mears. Plans were developed, frequently on a "crash" basis, for constructing roads, sewer and water systems, and housing and defense facilities throughout the area. These plans are evidenced today by the hundreds of drawings and documents depicting existing and proposed locations for every conceivable type of facility, utility and personal need. And while there was frequently drastic alteration of the natural environment, in this case to achieve a national defense objective, the development of the military facilities was accomplished with little lasting negative impact upon the area's natural environment. Aesthetically, however, the impacts have been devastating as the hundreds of buildings abandoned by the military have been allowed to deteriorate to the point where the facilities have become eyesores in the community.

The prospects for increased expansion of the seafood processing industry in Unalaska brought about by adoption of the 200 mile fishery zone has produced new pressure and a need to address issues through planning. The same is true of the prospects for OCS development. Although most development that has occurred to date in the coastal zone of Unalaska

has been accomplished with generally adequate regard for the value and fragility of the coastal environment, the increased intensity of use of the coastal zone likely in future years warrants that additional planning take place in the immediate future.

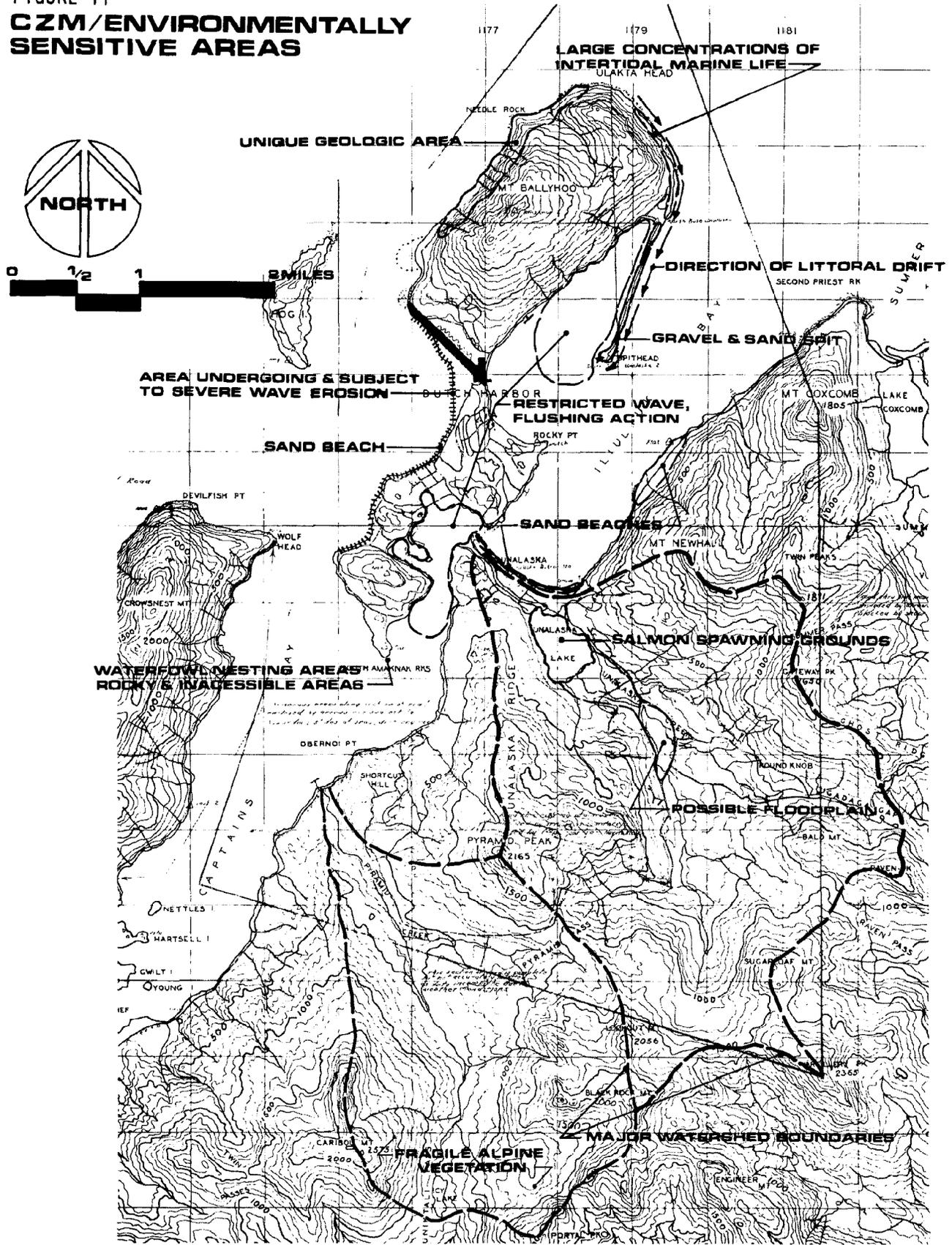
4. COASTAL RESOURCES IN UNALASKA. The City of Unalaska typifies the coastal community in a state that is heavily oriented toward coastal development. The very existence of Unalaska as a community is because it possesses one of the best natural harbors to be found anywhere. As almost all of the developed area of Unalaska is close to the shoreline, the physical and socio-economic data and descriptions given in previous sections are applicable to the coastal area in general and will not be repeated here.

The survival of Unalaska as a viable community is dependent on preservation of its fine natural harbor, and the utilization of its shoreline for commerce and industry which is, in turn, dependent on having a land-ocean interface in a suitable area. For the most part, this condition does exist with the existing patterns of land use. Except for the case of some residential development on the Amaknak Island side of Iliuliuk Harbor, which does not necessarily have to be located on the shoreline, most of the area physically suited for harbor development is either underdeveloped or has harbor-oriented industrial or commercial facilities developed thereon.

From the prospective of environmental-development conflict, which is so prevalent in many parts of the state, Unalaska is in a fairly advantageous position. The absence of significant amounts of flora and fauna, prime nesting areas, spawning grounds or endangered species, means that development may take place without facing this type conflict. Similarly, most of the environmentally sensitive areas which are of concern, such as the spit in Dutch Harbor, also tend to warrant protection from the socio-economic standpoint. The minimization of the environmental-development clash indicates that, hopefully, these issues will have a relatively low level of conflict.

The sensitive areas and conditions are shown in Figure 11. Perhaps the one major area where sizeable alteration to the natural land forms may have incentive to take place is the Ballyhoo Mountain side of Dutch Harbor. While this is a well protected harbor with very deep water, it does have a disadvantage from the commercial standpoint in that this portion of the harbor has extremely little level land for wharf and dock facilities to utilize. Pre-war maps indicate that the level land that does exist here presently is man-made as a part of the war effort. As the demand for dock

FIGURE 11
CZM/ENVIRONMENTALLY
SENSITIVE AREAS



facilities increases in the future, it may become economically desirous to cut into the mountain and fill in the tidal area so as to create more level land. Certainly this undertaking should be thoroughly reviewed before allowed to take place.

5. COASTAL MANAGEMENT ISSUES. There are several issues pertaining to resources and development in the coastal area of Unalaska, and others that may be imminent as items of controversy. Implementation of a Coastal Management program will bring all these issues into sharper focus, and require that policy positions be taken on them.

The first of these issues is one that has been ongoing as a result of federal and state water pollution control legislation. Seafood processing produces waste products, which are considered pollutants if not handled correctly. The processors in Unalaska have been regular and timely in complying with appropriate state and federal requirements in this regard. However, this situation arises in the case of Unalaska as a Coastal Management issue because of the particular concerns of the Coastal Management Program. Existing laws and procedures seem adequate, at this time, to deal with this issue.

Sport and subsistence fishing on the Iliuliuk River is another issue of potential local concern. Again, there are existing procedures for handling conflicts in this regard, but a Coastal Management Program serves to focus additional attention on the issue, thus tending to raise the level of concern.

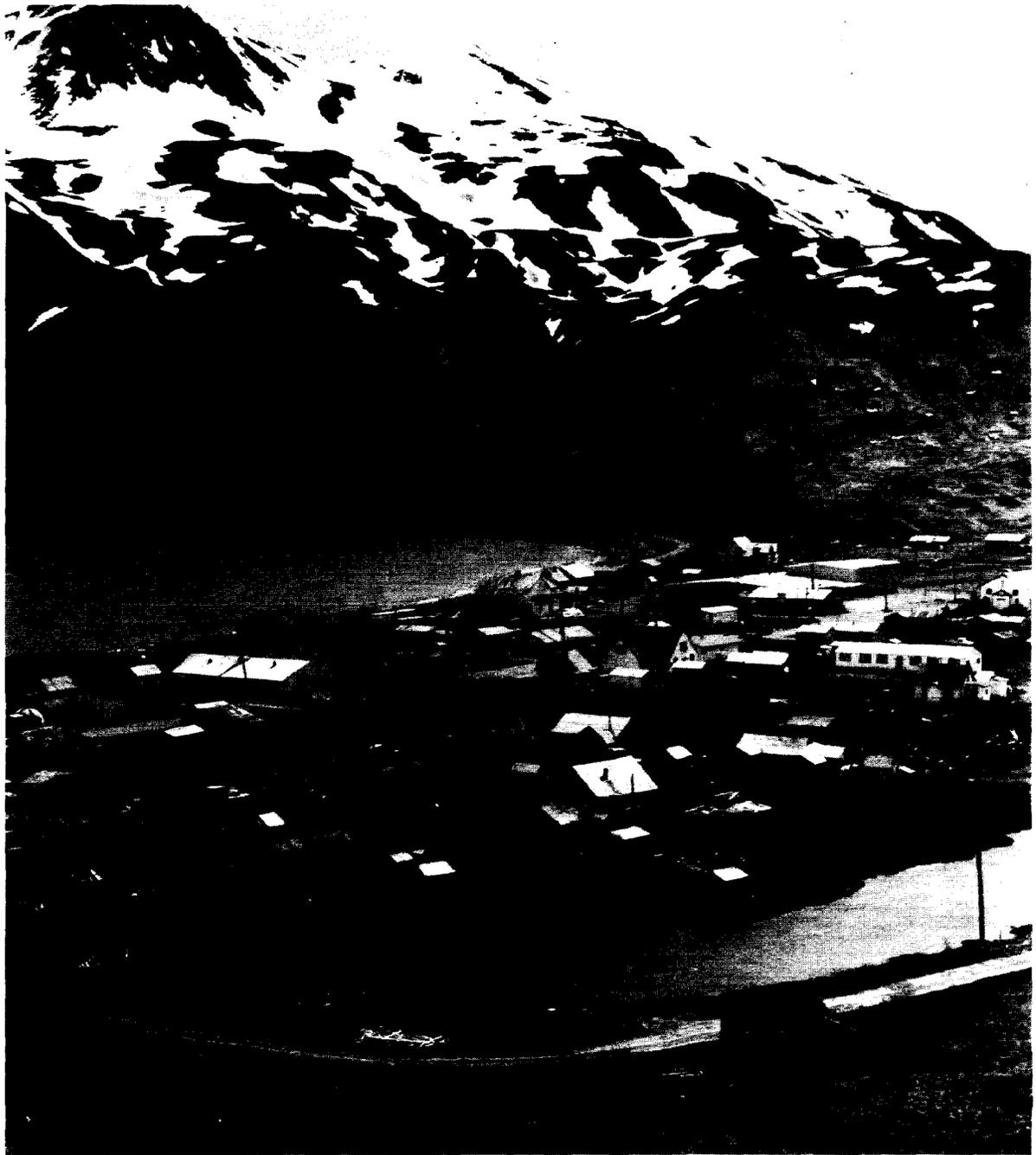
The dumping of garbage and refuse in beach areas and tidelands around Unalaska is an issue that will receive considerably more attention under a Coastal Management Program than it has in the past. With the national level of concern focused on beach areas, their protection is a central issue of the CZMA. This concern, coupled with the increasing amount of refuse with which to be concerned and the scarcity of suitable land in Unalaska for refuse landfill disposal will probably generate a degree of controversy which will have to be dealt with in Unalaska.

Another item specifically delineated in both the Federal and State legislation is the concern with historic and cultural sites. Where the potential sites in Unalaska are for the most part located on private property or what will be private property once patents to Native Corporation selections are finally conveyed, there is great potential conflict between the property owner, whose primary interest may lie in some sort of development of that property, and government, who may see preservation of that property as a public benefit. A Coastal Management Program accentuates

this possibility because of the concern over items which are "more than local" in nature. Thus, for example, a World War II military installation or site on Amaknak Island may be "taken for granted" by local people, but be of sufficient state and national interest that consideration must be given to its preservation. The development of Aleut culture archaeological sites and Second World War military sites and fortifications could well become controversial in Unalaska.

Another issue, more potential than actual at this point in time, is the question of impacts of offshore oil development on the fishing and seafood processing industries already established in Unalaska. A frequent occurrence with OCS development is that harbor needs for supply and other uses compete with the existing seafood industry for land and waterfront areas, which could, in a number of ways, cause a permanent displacement of the processing industry. Because a Coastal Management Program contains the tools to at least mitigate the OCS impacts, the impact conflict frequently becomes a major issue. In Unalaska's case, however, as indicated by the discussions in previous sections, it appears that the only potential for OCS development would be the development of a service base and as a refueling point. Neither of these uses should present serious conflict with the expansion and successful operations of the seafood processing industry.

In summary, these issues are ones which exist now, to a greater or lesser extent, but which will be brought under greater public scrutiny as a result of the Coastal Management process. It is not anticipated that any new regulatory tools will have to be developed to exercise whatever of degree of control is desired.



UNALASKA COMMUNITY DEVELOPMENT PLAN

II. UNALASKA COMMUNITY DEVELOPMENT PLAN

A Development Plan is a guide for the future growth and development of the Community. It is an expression of the community's economic and social potential; it depicts the future patterns of land use and the various community facilities, utilities and services necessary to meet the needs of future development. A Development Plan is also an expression of the desires of the community's residents - it should reflect the way in which they want their community to grow, change and develop in the future.

To this end the Development Plan is comprised of several components and elements. The plan is prepared through a process of investigation and analysis, determination of future potentials and translation of these into plans of action. A comprehensive Community Development Plan contains two components: one, the Plan itself; and secondly, the tools for implementation of the Plan. The elements of a Development Plan are:

- A. Statement of Community Goals and Objectives
- B. The Land Use Plan Element
- C. The Coastal Zone Management Element

- D. The Housing Element
- E. The Community Facilities Plan Element
- F. The Transportation-Circulation Plan Element

Other plan elements could be included in a Development plan such as an Open Space-Recreation Element, a Public Services Element, etc. These, however, would actually represent further detailing of some portion of one of the elements noted above. The Community Development Plan for Unalaska contains all six of the elements listed above. Each is presented in subsequent sections of this document.

Implementation of the Development Plan, once it has been prepared and adopted by the community, is just as important as the actual preparation of the Plan. The necessary tools for carrying out the Plan are contained in the implementation portion of a Plan. These tools include:

1. A Capital Improvements Program and Budget
2. The Lands Use and Development Controls, including: a Zoning Ordinance, Land Subdivision Regulations, Minimum Design Standards for Public Improvements, and Building, Fire and Housing Codes.
3. The group of policies adopted pursuant to the Plan which direct the City's administration to take specific actions.

Failure of most comprehensive Community Development Plans can be attributed to the absence of or ineffectual use of the implementation plan. Assuming the plan itself is accepted by the community, if the implementation program is not realistic or is not tailored to the particular characteristics of the community, the plan will never be implemented. The Development Plan for Unalaska presented in this document does not contain a complete implementation program since the scope of this project and limitations on funding do not permit such.

A. COMMUNITY GOALS AND OBJECTIVES

One of the most important aspects of a Community Development Plan is the statement of those basic policy objectives around which the Development Plan is formulated. Land use objectives, for example, are guides to the way in which

development of the community will proceed in fulfillment of the basic needs and wants of residents, firms, and institutions concerning opportunities, living qualities, costs, and minimum levels of health and safety. More specifically, a Statement of Goals and Objectives broadly identifies the kind of living environment that will be achieved from the proposals of the plan when development subsequently occurs.

The policy objectives, in combination with the existing and potential physical and socio-economic attributes of the community, form the basis for the Community Development Plan. Unless these policy objectives are reasonable, and unless the assessment of the community's attributes is accurate, a realistic and attainable Plan cannot be determined. The consideration of basic policy objectives is normally contained under the heading of "Goals and Objectives", a jargon which has developed among public policy makers and planners. In this context, "goals" are the broad overall community desires, and "objectives" are sub-categories, or further refinements of those goals. In the specific case of Unalaska, a more precise format than that normally employed has been used to state the objectives in that specific projects, programs and policies which will lead to attainment of the related goal have been identified and stated. In this way the statement is thought to be more meaningful.

The Statement of Community Goals and Objectives presented below served as the framework around which the Community Development Plan for Unalaska was prepared. The Statement, in draft form, was prepared initially by the project consultant. It was developed after careful review and in consideration of the material presented in the "Background for Planning" section of this report; after numerous visits by the consultant's several staff members to the community over the past five year period while working on a wide variety of projects in the City; and after extensive discussions with community leaders, industry representatives, merchants, teachers, City Council members, City administrative personnel and a number of residents of the City. The Statement was thought to be reflective of the cumulative wants and desires of the Unalaska populace.

The City Council and the City Manager were asked to review the draft Statement and respond with criticisms, suggested changes, deletions or additions. Such input was received from a majority of the Council members as well as from the City Manager and several of his key staff personnel. Based upon this critique the project consultant made changes in the Statement and then utilized the Statement in preparing the several Plan elements presented here. During the review of the initial draft of the plan report the City Council

made further changes and refinements in the Statement. These were not major in scope; however, to the extent that those changes affected some portion of the recommended Plan, several changes were consequently made in the Plan. The Statement of Community Goals and Objectives follows.

Statement of Goals and Objectives

City of Unalaska, Alaska Community Development Plan

I. GOAL: DEVELOP A STRONGER, MORE STABLE LOCAL ECONOMIC BASE

1. *Support development of additional shore-based processing facilities, utilization of new harvesting technology, expanded commercial fishery scheduling and development of expanded markets for fish products so as to bring about year-round fishing and processing activity in the Unalaska community, thus minimizing seasonality of employment.*
2. *Develop local dock, transport, warehousing and marine facilities to provide needed facilities for receiving general cargo and shipping processed seafood products, and to establish Unalaska as a regional transshipment center for the Aleutian Islands and Bering Sea regions, thus encouraging expanded job opportunities and a more diversified economy.*
3. *Develop a small boat harbor facility under local-state joint sponsorship and upgrade local marine service-repair facilities in Unalaska to meet needs of the Aleutian region commercial fishery fleet. The marine repair facility should be developed by private enterprise if economically feasible.*
4. *Under strict local control and pursuant to a pre-determined management plan, encourage outer continental shelf oil and gas development thus realizing additional job opportunities for local residents and diversifying the local economy.*

II. GOAL: ENCOURAGE COMMUNITY GROWTH WHILE MAINTAINING TO THE EXTENT POSSIBLE THE PRESENT COMMUNITY LIFESTYLE FOR THE CITY OF UNALASKA.

1. *Require OCS-related industry to accommodate short term transient population housing needs in temporary, industry developed housing facilities so as to limit permanent residential growth resulting from Outer Continental Shelf development.*
2. *Develop and implement a program of strong local control over permit processes for siting of facilities associated with OCS development.*
3. *Support the local cannery management's efforts to develop shore-side housing for seasonally transient workers.*
4. *Adopt and implement zoning regulations which control the number, density and location of multi-family residential housing units.*
5. *Schedule, under civic sponsorship, periodic community clean-up campaigns, cultural and historical events, beautification projects and outdoor recreational activities so as to encourage greater residential citizen participation in community civic events and programs.*
6. *Review local ordinances and regulations and scrutinize implementation programs and city administrative practices with the aim of minimizing government involvement in citizens' personal lives.*
7. *Minimize state and federal government interference by careful local enforcement of state and federal laws.*

III. GOAL: UPGRADE LOCAL COMMUNITY SERVICES AND FACILITIES

OBJECTIVES:

1. *Continue currently ongoing community programs aimed at upgrading municipal water supply and distribution facilities and developing community-wide sanitary sewer collection and treatment facilities.*
2. *Commit public resources to development of a plan for providing additional electrical generation capacity and upgrading distribution facilities to meet both domestic and industrial needs.*

3. *Correct existing deficiencies in refuse collection and disposal with immediate priority upon eliminating the several open garbage dumps and development of a proper City operated sanitary landfill.*
4. *Review current City programs and procedures with respect to providing public services, especially in the areas of road maintenance, refuse collection and related maintenance functions, with the aim of improving local government's responsiveness to people's needs and requests for such service.*
5. *Continue monitoring state and federal grant-in-aid and loan programs for possible sources of funds with which to upgrade and develop public facilities and utilities.*
6. *Investigate the feasibility of a new combined community center-government services building.*
7. *Develop and adopt public policy which places the financial burden for meeting accelerated demands on local public utilities, brought about by interim/short term OCS development, primarily upon the impact creating entity.*
8. *Develop a five (5) year Capital Improvements Program (CIP) covering all areas of public utilities, facilities and services which recognizes the potential for accelerated demands on such improvements resulting from OCS development and an expanded level of commercial fishery development.*
9. *Review and update the City Code of Ordinances and publish copies for distribution to interested city residents.*
10. *Utilize lands, where appropriate, received through ANCSA section 14(c) reconveyance process to meet needs for upgraded and new community facilities and utilities.*
11. *Schedule periodic utility, facility and service systems review by qualified expertise as a means of preventing breakdowns and failures of essential utilities and facilities.*

IV. GOAL: PRESERVE THE EXISTING NATURAL ENVIRONMENT OF THE UNALASKA AREA

OBJECTIVES:

1. *Identify and abate all existing sources of pollution and closely scrutinize all future development for potential*

sources of land, air, water and visual pollution and for compliance with applicable state and federal anti-pollution laws and criteria.

2. Develop and implement a land use plan and a coastal zone management plan which recognizes the limited developable land in the community and the fragility of the coastal zone environment and the importance of its resources.
3. Examine existing cultural and historic sites in the community for possible preservation and, where appropriate, enhancement of those culturally and historically significant attributes.
4. Petition the State Local Boundary Commission for expansion of the present city limits to encompass watershed areas, all coastal lands surrounding Captains Bay, the Summer Bay and surrounding areas, and Nateekin Bay and surrounding lands, and all waters within the new City boundary.
5. Control development of low-land areas lying within the suspected floodplain of Unalaska Creek.
6. Expedite planning for development of sanitary sewer collection and treatment facilities including attention to proper handling of fish processing wastes from local canneries.

V. GOAL: INCREASE SUPPLY OF HOUSING AND UPGRADE EXISTING HOUSING CONDITIONS

OBJECTIVES:

1. Consider implementation of allowable residential property tax exemptions, including exemptions for re-development, as an incentive to the individual current and prospective home owner in Unalaska.
2. Appropriately zone land suitable for residential development and provide utilities, facilities and required infrastructure as incentive to development of additional housing.
3. Adopt appropriate codes to assure minimum safe and decent housing and upgrading of existing substandard housing and to achieve construction quality and building placement compatible with wind related and snow loading factors.

4. *Encourage large-scale housing development and upgrading programs to take advantage of "bulk-rate" purchasing of materials for housing construction.*
5. *Investigate City-Unalashka Corporation joint cooperation on establishment of an Unalaska based housing authority.*
6. *Utilize the CIP to upgrade roads, streets, open space, recreational facilities and related community facilities as a means of enhancing living conditions in the community.*

VI. GOAL: LOWER THE COST OF LIVING IN UNALASKA

OBJECTIVES:

1. *Develop improved dock, warehousing and trans-shipment facilities in Unalaska under City sponsorship as one means of lowering transportation costs.*
2. *Work for improvement of airport facilities, including weather forecasting service and possible extension of the Dutch Harbor Airport runway, as a means of upgrading air transport services.*
3. *Investigate the possible formation of an "Aleutian Region" shipping co-op as a means of lowering shipping costs.*
4. *Investigate the possible formation of an "Unalaska Community" purchasing co-op to facilitate lower cost "bulk" purchasing.*
5. *Adopt public policy permitting transfer of public land on long term lease basis for nominal fee to private entities, or other public participation in projects, where a clear showing is made that such action would benefit in reduction of cost of living throughout the community.*
6. *Seek a comprehensive study and preparation of an Aleutian regional transportation plan which should have as its prime objective reduced transportation costs and improved frequency and reliability of service, both waterborne and air to Unalaska.*

VII. GOAL: ENCOURAGE UPGRADING OF PERSONAL SERVICES IN THE
COMMUNITY

OBJECTIVES:

1. *Seek location of a banking facility in Unalaska.*
2. *Seek continued and additional state and federal financial and program assistance for social services impact caused by the high level of transient population in the community.*
3. *Seek resident professional medical and dental services in the community and investigate the development of a hospital for both local and regional use in Unalaska.*
4. *Adopt public policy making land and facilities available at minimal or no cost to other governmental service agencies, where such action can be demonstrated to result in benefit to Unalaska residents.*

It is recommended that the City Council adopt this Statement of Goals and Objectives as a part of the official policy of the City of Unalaska. As such, it would serve as the framework for all of the City's future planning and would provide direction to the City's improvement programs and future bonding and capital expenditure programs. It is recommended that once the Statement is adopted an annual review be undertaken and that amendments be adopted where review indicates appropriate. Without such review and periodic modification, the Statement will become outdated; it would no longer reflect the current thinking of the City's residents or be germane to current opportunities or problems facing the community. It would be advisable for the City Council to adopt the practice of referring to the Statement of Goals and Objectives whenever decisions of consequence are to be made relative to facilities, utilities, major programs or incurring bonded debt.

B. LAND USE PLAN ELEMENT

After the Statement of Goals and Objectives, the Land Use Plan is the most important element in the Community Development Plan. It is the expression of the future physical development pattern of the community. It illustrates the several land use types required to make the community complete and it portrays the relationship of the land uses one to the other. It illustrates where in the community new development will be encouraged to occur, and conversely, where it will be discouraged. The intent of the Land Use Plan is to achieve spacial harmony among the land uses. To this end it is intended to assure compatibility of adjacent uses by, for example, locating heavy industrial uses in locations removed from residential uses with adequate buffer and open space between. It establishes the density of development that will occur. It depicts the location of the community's central or core area where commerce and business is to be located. It also serves as the basis for the other physical plan elements such as the Transportation/Circulation Plan element and the Community Facilities Plan. It is the determinant of where public utilities will be needed in the future. The Land Use Plan should be the controlling element! All other physical elements should be based upon the Land Use Plan. The Circulation Plan should not, as is all too often the case, dictate land use - the reverse should be the case.

In developing the Land Use Plan, many factors should be taken into consideration. Among them are the topography of the land, the existence of natural features (such as rivers, mountains, etc.) which dominate the landscape, special soil conditions which might restrict use of the land for housing or other development and particularly the sensitivity of coastal areas and the need to give added protection to the value such areas serve in the community. Existing land use patterns and uses should also be carefully considered. Every effort should be made to identify those existing land uses which are in harmony with the overall desired future pattern and which are properly situated. Those which are incompatible with the desired pattern should be scheduled for elimination or displacement to other more suitable locations. For this reason, a thorough inventory of existing land use is a prerequisite to preparation of the Land Use Plan element.

1. EXISTING LAND USE. A survey of existing land use was conducted in Unalaska during June of 1977. A visual inspection was made of the community by the project consultant. This survey was supplemented by aerial photography available for only a portion of the total community, data from the City's real property tax roll, old military maps of the area, state land status maps, Bureau of Land Management land

status maps, and other maps as they were available. During the survey, specific data was collected identifying land use on individual platted lots and larger unplatted areas throughout the City. Land use was categorized into groups. A listing of these categories and a brief description of each follows:

- Residential - All land used primarily as a place of residence.
- Single Family - Individual, detached housing units, normally, but not always, one dwelling unit per lot.
- Duplex - Two single-family dwellings attached by one or more common walls, floors or roof.
- Multi-Family - Three or more dwelling units attached by common walls. (Note - all apartments in buildings, whether attached to other apartments or not, are classified under Multi-Family).
- Commercial - All land used primarily for the retail or wholesale of goods or services. Manufacture of those goods on the same location is secondary to the sales for purposes of this analysis. This category includes bars, grocery stores, restaurants, hotels/motels, and others similar.
- Industrial/
Fisheries - Lands used for the processing and canning or freezing of fish and shellfish. This category includes both floating and shore based processors, and their warehouses and other support areas as used by the processors. Housing associated with the processors, however, has been classified as such when it is possible to distinguish it from non-housing uses. In some specific instances this was difficult to accomplish since much housing of the industry type is located on board floating processing vessels and the percentage or amount of area devoted to housing as compared to that devoted to processing functions is difficult to determine.
- Industrial/
Other - Lands used for production or storage other than fisheries-related. Includes open and covered storage of equipment and materials and sites used for equipment repair or construction purposes.

- Public - Public-owned lands either presently developed or intended for a public use in the future. Includes school sites, fire stations, well sites, city shop facilities and so forth.
- Quasi-Public - Privately owned and used lands of a public nature, including church properties and facilities, and communication sites and facilities.
- Open Space/
Park Uses - Public land used by the community for outdoor recreation purposes and land for which no use currently exists or is likely to exist in the future.
- Abandoned Military/
Residential - Areas formerly used by Army and Navy forces for residential purposes. Buildings may or may not be in a usable condition.
- Abandoned Military/
Industrial/
Other - Buildings and land used for military support and supply. Buildings may or may not be salvageable.

Land use data gathered during the inventory was transferred to a land use map (Figure 12, Existing Land Use), for ease of reference and use. A compilation of this data is found in Table 7. A general review of land use and land use patterns in the community follows. More specific analyses were made for each area as the land use plan was developed.

Several points seem to be evident when analyzing development patterns within the City. Nearly all developed land within the community is located within several easily identifiable geographic areas. Almost all flat or nearly-level land is desirable for development by virtue of its soil composition, accessibility, and capability of being served with utilities. Exception to this is found in the case of the suspected Unalaska Creek floodplain area. Almost any land adjacent to the coastline is highly desirable for development. Stated another way, flat areas next to the water are, and have been, the most desirable areas for community development in Unalaska.

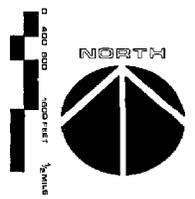
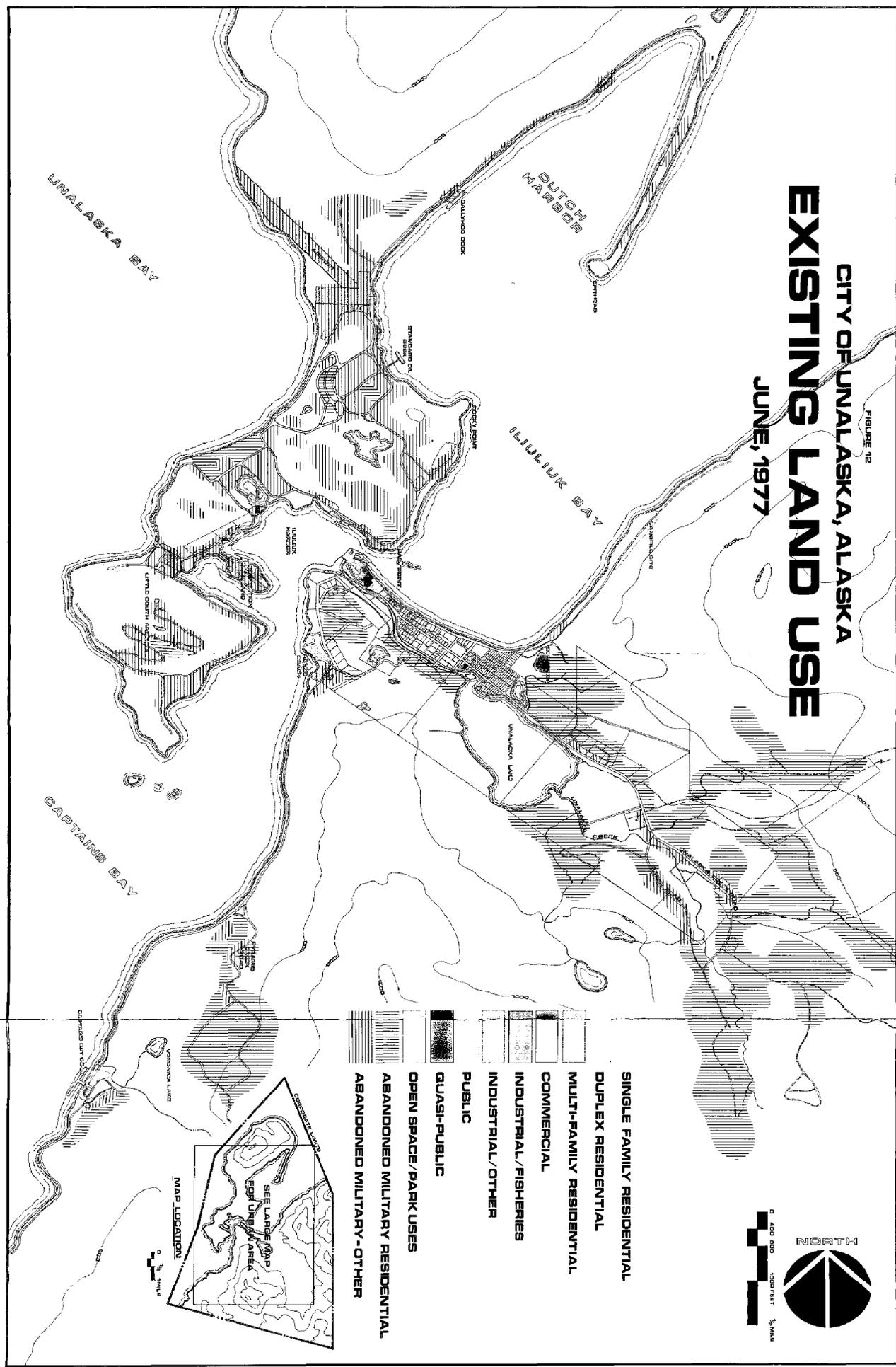
Most development in the community has occurred along the spit between the Iliuliuk River and Iliuliuk Bay, up Unalaska Creek Valley, and on the flat lands adjacent to the protected waters of the Iliuliuk Harbor area on Amaknak

CITY OF UNALASKA, ALASKA

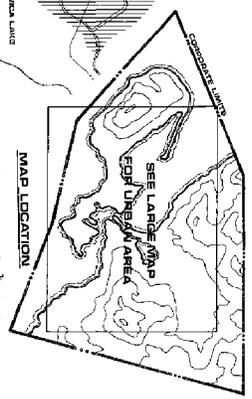
EXISTING LAND USE

JUNE, 1977

FIGURE 12



- SINGLE FAMILY RESIDENTIAL
- DUPLEX RESIDENTIAL
- MULTI-FAMILY RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL/FISHERIES
- INDUSTRIAL/OTHER
- PUBLIC
- QUASI-PUBLIC
- OPEN SPACE/PARK USES
- ABANDONED MILITARY RESIDENTIAL
- ABANDONED MILITARY-OTHER



Island. Most residential development has occurred in the town spit area. Commercial development is scattered throughout the area. Industrial developments of a large scale, including both fish processing and transportation facilities, are located on waterfront sites. Most fish processors are located within the Iliuliuk Harbor area, but others are located on Captains Bay and along Ballyhoo Road.

One major determining factor seems to affect community development in Unalaska to a considerable degree. That factor is land ownership.

TABLE 7
EXISTING LAND USE - CITY OF UNALASKA, ALASKA
JUNE, 1977

LAND USE CATEGORY	NUMBER OF UNITS (Sites, buildings, etc)
<u>Residential</u>	
Single-Family Dwellings	110
Mobile Homes	45
Two-Family Dwelling Units	26 (13 duplex structures)
Multi-Family Dwelling Units	32
Dormitory Bunks	256
On-Ship Bunks	872
Commercial Establishments	12
Industrial-Fisheries Sites - Waterfront	10
Industrial-Fisheries Sites - Other	approx. 10*
Industrial-Other Sites	9
Public Facilities	20
Quasi-Public Facilities	5

*Number may vary because of on-going construction during study.

Source: Tryck, Nyman & Hayes, Land Use Survey, June, 1977.

Prior federal government ownership of a majority of the land (including much of the flat waterfront land) in the City has prevented the use of many sites for community development and expansion. Development, therefore, has been limited to those areas previously platted by the Bureau of Land Management and where leases could be secured on government-owned land. This contrived pattern of land use has for the most part produced a mixture of uses which are incompatible in most cases. In some instances, this forced pattern has led to development and use of areas where service with utilities is costly coupled with a by-passing of some areas more suitable for use and development.

The most concentrated development has occurred in the area of the town spit, the oldest part of the community. The lots in this area are developed with a mixture of single-family dwelling units and commercial and industrial uses. Approximately 20 percent of the platted lots in the spit area remain undeveloped. Relatively large blocks of City-owned land are found at the eastern end of the spit, some of which are developed with the community's school complex, the recreation center, the City Hall, the Court Room and jail facilities, and other public facilities. Some city-owned land in this area is undeveloped.

Southeast of the town spit, up the Unalaska Creek Valley and adjacent to and south of Unalaska Lake, only scattered development has taken place. Residential settlement has begun and the City has its major public works shop located in the area as well as two water supply wells and pump house facilities. With these few exceptions, nearly all the land in the Unalaska Creek Valley is undeveloped although remains of military buildings exist in virtually every side valley, flat area and on most of the hillsides. The remaining areas within the City boundary on Unalaska Island are undeveloped, with the exception of a few scattered residences, and industrial development in the Agnes Beach and Captains Bay areas.

On Amaknak Island, most development has taken place in the area south of the airport and north of the peninsula known as "South America". The waterfront along the Iliuliuk Harbor area is the major activity-center for the Island. The majority of the processor ships are located within this area, and most all the processor employees reside in this area, on board the ships in dormitory facilities and bunkhouses adjacent to the ships, or in residences scattered throughout the area. Housing is generally located as near the respective processing plant as possible without interfering with the activities therein. The land use pattern is thus one of multiple incompatibilities, confusion and serious inefficiency in use and traffic movement. Residential land use is also

located at the site of the former military officers' housing. Once abandoned, the housing in this area is being rehabilitated by the Ounalashka Corporation. The Standard Oil Company operates a large tank farm south of the airport, supplying fuels for the community, the fishing industry and aircraft operations.

The area around Dutch Harbor Airport is sparsely developed with airport-related uses. The present airport terminal is the former naval station airport control facility. The large aircraft hanger located across the parking apron from the terminal is used for storage and some aircraft parking. Most of the land use in the vicinity of the airport, however, consists of abandoned military buildings originally constructed and used for a wide variety of purposes.

The central Amaknak Island area is the site of a majority of the abandoned Dutch Harbor Naval Base facilities, including a major hospital complex which is badly deteriorated. Many of the numerous buildings in this area are dilapidated and beyond repair, and their only value appears to be as salvage. Structurally sound buildings in the area have been identified by the new owners, the Ounalashka Corporation, and some have already been re-roofed in an attempt to restore to use as many as possible.

North of the airport, land use is limited to the narrow manmade strip of land between the almost vertical slopes of Mt. Ballyhoo and the waters of Iliuliuk Bay and Dutch Harbor. Two floating fish processor vessels are the major land users in the area. Plans have been developed by the City for reconstruction of a major dock facility to replace the dilapidated Ballyhoo dock structure. When rebuilt it will be used as a general cargo dock.

Further analysis of land use data for the City of Unalaska reveals several important statistical aspects about the Community (see Table 8). There are approximately 16,300 acres of area within the boundaries of the City. An estimated 6,000 acres are water, leaving 10,300 acres of land within the city. Of this approximately 8,100 acres are on the Unalaska Island portion and 2,200 acres are on the Amaknak Island portion. Of the total 10,300 acres of land area, only an estimated 1,896 acres are considered suitable for development. The balance, 8,404 acres, consists of lands with slopes in excess of 25 percent, are inaccessible or are located in the suspected floodplain of Unalaska Creek.

Of the 1,896 acres of land considered suitable for development, some 400 acres have already been developed and are currently being actively used. Abandoned military lands

TABLE 8
 LAND USE AND DEVELOPMENT
 POTENTIAL
 CITY OF UNALASKA

Acreage Encompassed by City Boundary	16,300 ac.
Total Water Area Within City Boundary (37%)	6,000 ac.
Total Land Area Within City Boundary (63%)	10,300 ac.
Land Area - Unalaska Island Portion	8,100 ac.
Land Area - Amaknak Island Portion	2,200 ac.

Undevelopable Land:

Slopes greater than 25% or otherwise inaccessible:	7,244 acres
Unalaska Creek Water Supply Preserve (within City):	1,160 acres

Total Undevelopable Lands 8,404 acres

Total Land Area	10,300 acres
Undevelopable Land Area	8,404 acres

Developable Lands	1,896 acres
Land Currently Developed	- 400 acres

Remaining Developable Lands 1,496 acres

Private Ownership	400 ac.	
City-owned	50 ac.	
State-owned	20 ac.	
Federal-owned	1,026 ac.	(approximately 880 acres of this acreage has been selected by the native village corporation.)

Percent of Usable Land:

Vacant	78%
Developed	22%

Source: Tryck, Nyman & Hayes, Land Use Survey, June 1977.

are not considered to be actively in use even though they may have buildings or facilities located on the land. They are thus excluded from this figure and are instead categorized as undeveloped. Thus, there are an estimated 1,496 acres of land suitable and available (by virtue of being presently undeveloped) for development in the City of Unalaska. Those lands considered unusable by virtue of their having slopes of 25 percent or greater or otherwise inaccessible are shown on Figure 3.

It is apparent from this analysis that, in a community sparsely developed at present and having the appearance of enjoying an abundance of wide open spaces, there actually is a minimal amount of undeveloped land which is at the same time suitable for development. This accentuates the seriousness of instances of inefficient land use referenced earlier and would seem to indicate that very careful land use planning must be accomplished and implemented if the maximum benefit and utilization is to be derived from available land area.

2. LAND TENURE. Figure 13 illustrates the land ownership pattern in the City. It takes into account Ounalashka Corporation land selections which have been patented, those which have received interim conveyance and those which have received no action by BLM. According to the Bureau of Land Management the Ounalashka Corporation is entitled to receive 115,200 acres of land under the terms of the ANCSA. Some 9,400 acres of this total have been selected within the City limits. The Ounalashka Corporation has thus far received title to 137 acres of its selection, and interim conveyance on an additional 4,500 acres within the City limits including all of the selected lands on Amaknak Island.

Slightly over 1,000 acres of land have been surveyed within the City limits. Most of the surveyed land is now in private ownership or will be when the ANCSA conveyances to the Corporation are completed. One large surveyed parcel of land (U.S. Survey No. 4988), about 100 acres in size, remains in Federal ownership, and has been excluded from the Ounalashka Corporation selection. This land encompasses the areas known locally as "Haystack Hill" and Tract "B" of the Townsite Addition. These parcels will be the only sizeable acreage of federally owned land remaining in the City limits after native claims selections have been finalized.

The charge is frequently heard from Unalaska residents that an artificial land shortage is being created and perpetuated by government ownership and retention of large amounts of land in the City. The map showing Land Tenure, (Figure 13) and the data in Table 8 tends to substantiate this charge.

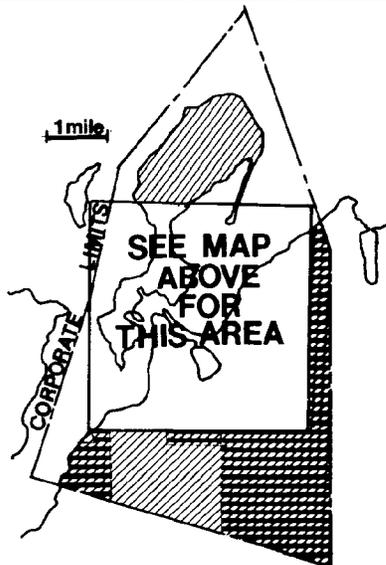
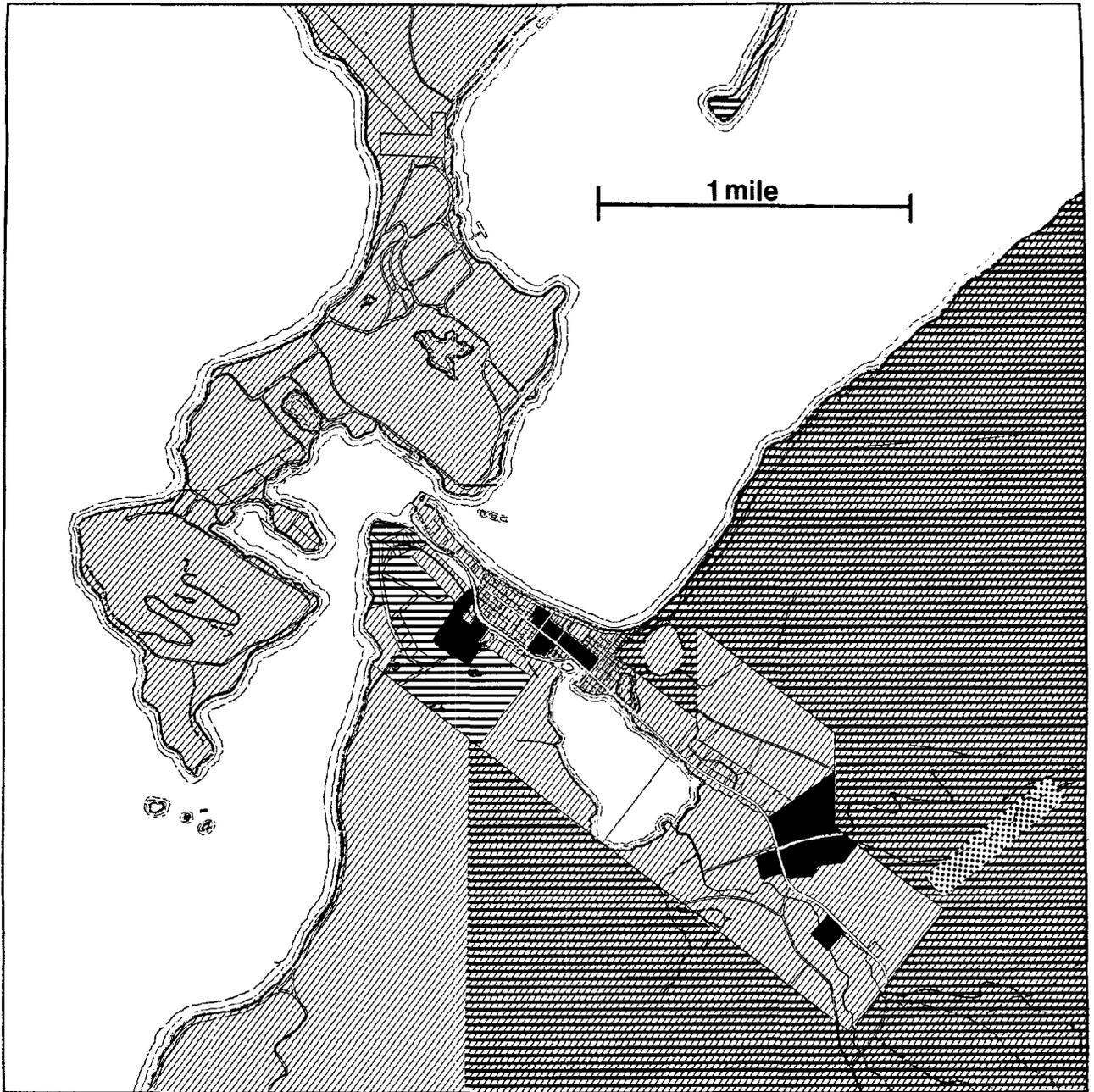


FIGURE 13
LAND TENURE
 JUNE, 1977

-  FEDERAL OWNERSHIP
-  FEDERAL LANDS SELECTED BY NATIVE VILLAGE CORPORATION
-  STATE OF ALASKA OWNERSHIP
-  CITY OF UNALASKA OWNERSHIP
-  PRIVATELY-OWNED LANDS (INCLUDES NATIVE CORPORATION INTERIM CONVEYANCE LANDS)

Of the 1,496 acres of vacant and developable lands, over 1,000 acres (69%) are presently owned by governmental agencies other than the city, primarily the Federal government. The City owns approximately 3.5% of the remaining recorded undevelopable lands. It must be noted, however, that there is privately owned land suitable for development and located near the center of the City on both the mainland side and Amaknak Island, which could be developed. It is assumed that this land is not available for development because it is either not for sale or is beyond the range of economical purchase for the uses to which it is suited.

In summary, most of the federally-owned land within the City has been selected by the Ounalashka Corporation. It is assumed that all of that land selected will be transferred, leaving only the 100 or so acres of Haystack Hill or Tract "B" in federal ownership within the City boundary. These lands will then, according to reports by the City Manager be turned over to local residents for home-site use. Every effort shall be made to acquire release and disposition of that government owned land for which there is no foreseeable public use or need. The City should seek the cooperation and assistance of the BLM in this regard since most of the subject land is owned by the Federal government.

3. LAND USE PLAN. The Land Use Plan for the City of Unalaska, Figure 14, has been prepared around a ten (10) year time frame, 1977 to 1987. This time period was chosen for several reasons. First, the population forecast period is established at ten years (1977-87) for reasons already discussed. Secondly, it is generally unwise to prepare the Community Development Plan for any time period beyond that which it is possible to reasonably foresee what is likely with respect to the economic situation in the community. Thirdly, given the dynamics of the economy in Unalaska, the Aleutian region and the state as a whole, it would be unrealistic to attempt setting land use patterns and related development of facility and utility plans for a time period beyond 1987.

The Land Use Plan has been developed in reliance upon the economic and population forecasts. The amount of any given specific land use, the density of development, and the related facility plan have been developed to reflect the needs that appear from the economic and population forecasts. It also takes into account the amount of developable lands within the City compared to the total land area and the presence of several physical characteristics such as irregular topography, sensitive coastal areas, the high percentage of land necessarily devoted to seafood processing industry uses and the general situation existing where almost all of the land in the usable category requires public sewer and water,

due to poor soil conditions, before development can safely occur. A description of the Land Use Plan follows.

a. Residential. Residential use is allocated in four categories according to density of dwelling units and character of residential development. A total of 1,276 acres of land area is allocated to residential uses, 1,141 acres on the Unalaska Island portion of the City and 135 acres on Amaknak Island. The four residential classifications, with their density and utility requirements are described below.

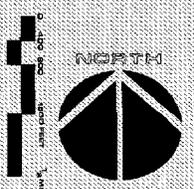
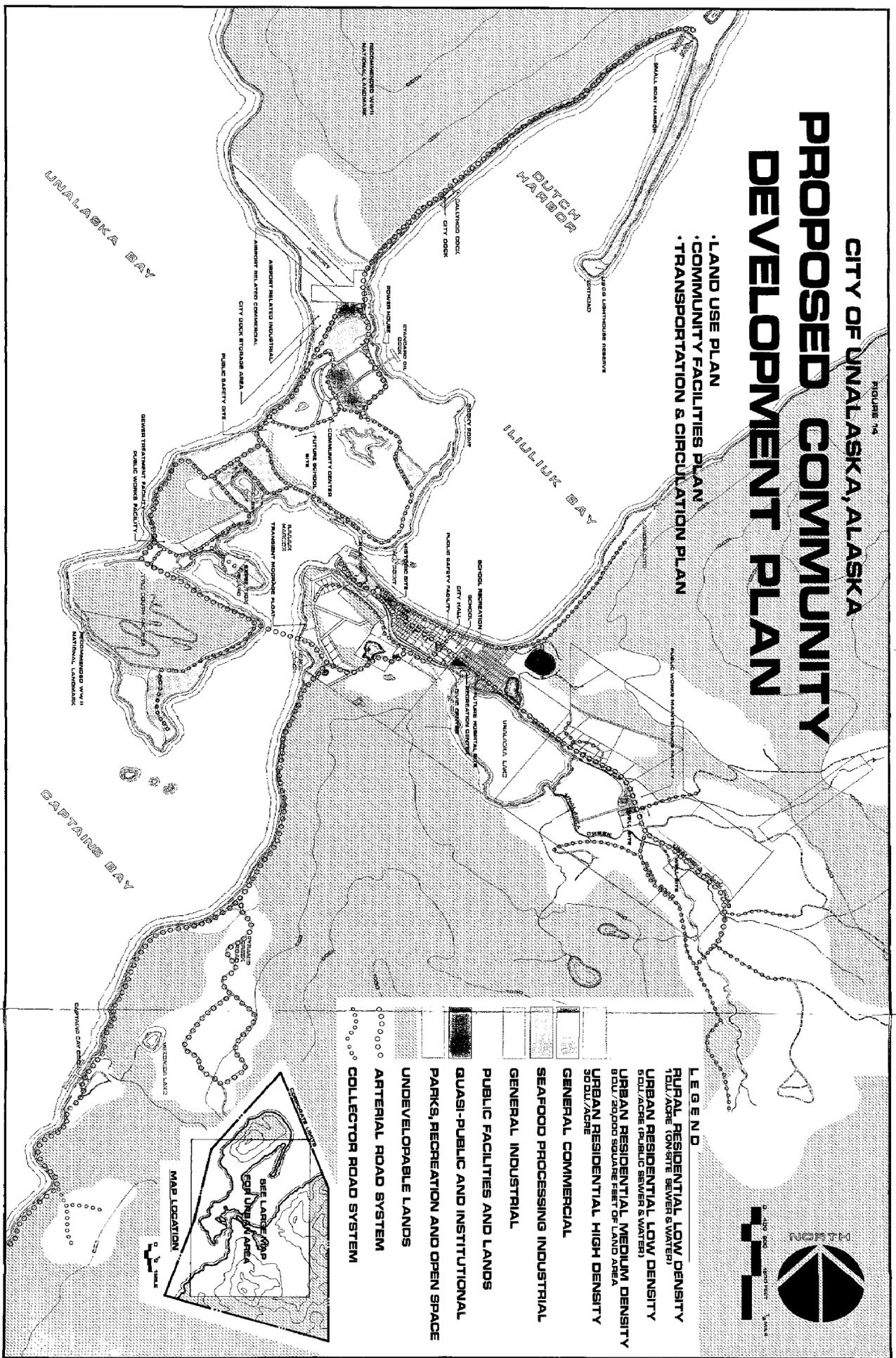
Rural Residential Low Density: This residential classification is intended to allow development of individual single family homes on sites of one (1) acre minimum size with on-site individual water and sewer (septic tank) facilities where it can be demonstrated that the soil conditions and drainage patterns will safely permit on-site sanitary disposal. One hundred and thirteen (113) acres has been allocated to this use. It is all located in areas on the Unalaska Island side of the City. The areas are isolated locations where topography is conducive to residential development but road access is through extremely steep terrain. It should be the policy of the City that public sewer and water will not be extended to these areas at cost to the City and that only minimal road maintenance service will be extended.

Urban Residential Low Density: This land use classification is intended to provide space for development of two residential densities, one (1) dwelling unit per acre where on-site sewer and water can safely be provided, and a maximum of up to five (5) dwelling units per acre where and when public sewer and water is provided. Single family, duplex and triplex dwelling units would be permitted. It should be the policy of the City to extend public sewer and water utilities to all of the areas designated under this classification. Eight hundred and twenty-nine (829) acres of this classification are located on the Unalaska Island portion of the City and one hundred (100) acres on Amaknak Island. The classification is designed to foster a mixture of housing types in the future urban area of the City and has the capacity to accommodate a total population of between 2,800 and 8,400 at full development depending on the actual density and the mixture of one, two and three family dwelling units that are developed. Individuals who develop in this area prior to the time public sewer and water are installed to their property should be cognizant of the one dwelling unit per acre maximum limitation with on-site sewer and water and of the

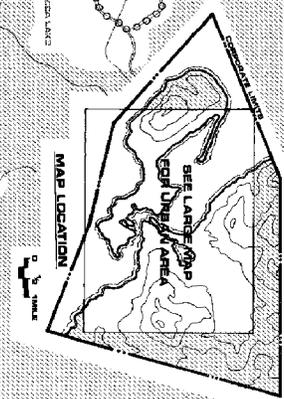
CITY OF UNALASKA, ALASKA

PROPOSED COMMUNITY DEVELOPMENT PLAN

- LAND USE PLAN
- COMMUNITY FACILITIES PLAN
- TRANSPORTATION & CIRCULATION PLAN



- LEGEND**
- RURAL RESIDENTIAL LOW DENSITY
1 DU / ACRE (ON-SITE SEWER & WATER)
 - URBAN RESIDENTIAL LOW DENSITY
5 DU / ACRE (PUBLIC SEWER & WATER)
 - URBAN RESIDENTIAL MEDIUM DENSITY
8 DU / 20,000 SQUARE FEET OF LAND AREA
 - URBAN RESIDENTIAL HIGH DENSITY
50 DU / ACRE
 - GENERAL COMMERCIAL
 - SEAROOD PROCESSING INDUSTRIAL
 - GENERAL INDUSTRIAL
 - PUBLIC FACILITIES AND LANDS
 - QUASI-PUBLIC AND INSTITUTIONAL
 - PARKS, RECREATION AND OPEN SPACE
 - UNDEVELOPABLE LANDS
 - ARTERIAL ROAD SYSTEM
 - COLLECTOR ROAD SYSTEM



UNALASKA BAY

DUTCH HARBOR

ILLULIUK BAY

CAPTAINS BAY

potential for eventually developing up to five dwelling units per acre once utilities are extended. City policy will have to be developed which coincides extension of sewer and water with or slightly ahead of demand so as not to stifle development and artificially create a shortage of developable land. Also, city policy on extending sewer and water should cause development to occur logically and not create a "leap-frog" pattern where large blocks of land are bypassed to service other blocks further up the Unalaska Creek Valley. The timing of extension of sewer and water thus is a critical factor.

Urban Residential Medium Density: This residential classification is designed to permit higher density development closer to the central part of the City core on the Unalaska side and in specific locations on Amaknak Island where high density is appropriate and in proximity to industrial and commercial activity centers. A total of 202 acres of this use classification are shown on the Land Use Plan, 191 acres on Unalaska Island and 11 acres on Amaknak Island. The classification permits a medium density of development, up to 16 dwelling units per acre, generally apartments of the four and eight family per unit type. Public sewer and water utilities would be required for such density. Individuals who want to develop single family or duplex type dwellings in these areas should not be prohibited from doing so, however, it does not seem economically advisable for the land owner to do so. The land area included in this classification has the capacity to accomodate between 9,000 and 10,000 total population, again, depending on the mixture of density and dwelling unit types which actually develop.

Urban Residential High Density: The Urban Residential High Density use classification is the highest density residential category in the plan and is intended, primarily, to accomodate housing needs of the canneries' transient-seasonal labor forces. For this reason 24 acres of the total 32 acres of this land use category are located on Amaknak Island in proximity to the seafood processing sites; 8 acres are located on Unalaska Island also in proximity to cannery operations. At full density development, 30 dwelling units per acre, the land in this category has the capacity to accomodate an extremely high density of population depending on the specifics of size of each dwelling or housing unit, whether they are dormitory style, bunkhouse type, or two persons per efficiency apartment unit, etc. Realistically, an efficient development in these areas could accomodate 2,000 population easily.

Table 9 illustrates the population "holding capacity" of the residential portion of the land use plan. "Holding Capacity" is a planning concept which is used to demonstrate the ultimate maximum population that the land use plan is capable of accomodating given the land area available for development, the density of that development and the family unit size common to the community. The holding capacity population figure arrived at, in this case between 30,800 and 32,700 assumes that all available residential land will be developed to the fullest density allowed, a situation which rarely occurs except in the urban center of the larger metropolitan areas of the country. As a practical matter, land use patterns that have characteristically evolved in communities similar to Unalaska are such that rarely is one-half of the holding capacity ever reached. Efficiency in land use simply isn't that high.

What application of the concept demonstrates in this instance is that the land use plan proposed has adequate capacity to accomodate almost two times more population than would occur even under the "high" economic-population growth scenario of 15,500 population for the year 1987, and over five times the population that would occur under the "low" economic-population growth scenario. Carried one step further, the land use plan is capable of serving population increase well beyond the 1987 time frame placed upon it. This demonstrates that the growth and development of the community will not be hampered by the artificial constraints of a restrictive land use plan should it happen that growth occurs at a faster pace than envisioned.

b. General Commercial. The commercial land use category in the Land Use Plan contains 38 acres, 18 acres on the Unalaska side and 20 on the Amaknak Island portion. This is equivalent to approximately 19 city blocks of land area, certainly adequate area to meet the needs of the community in the time frame of ten years. Uses envisioned in the category include the full range of retail stores, services, offices, eating and drinking establishments, overnight accomodations and the like. In addition, commercial uses similar to those likely to develop as ancillary uses in the seafood processing industrial land use classification would be included. The areas designated commercial are located in proximity to the centers of activity in the community and to the residential centers as well. Several of the commercial areas need specific discussion.

The commercial area adjacent to the airport is intended to be primarily for airport related commercial uses, i.e. hotel-motel, restaurants and lodge, and other retail and service establishments that would derive benefit from airport passenger traffic. The commercial area located up the hill

TABLE 9

CITY OF UNALASKA LAND USE PLAN
THEORETICAL RESIDENTIAL HOLDING CAPACITY

<u>Land Use Category</u>	<u>Total Acreage</u>	<u>Max. Dwelling Unit Density Per Acre</u>	<u>Max. Population Holding Capacity</u> ⁽¹⁾
Rural Residential Low Density:	113	1	300
Urban Residential Low Density:	929	5	13,900
Urban Residential Medium Density:	202	16	9,700
Urban Residential High Density:	32	30	1,900 ⁽²⁾ 3,800 ⁽³⁾
Shorebased Transient Seafood Processing Industry Housing:	41	30	5,000 ⁽³⁾
			30,800 - 32,700

(1) Assumes average density per dwelling unit equal to 3 persons, rounded to nearest 100.

(2) Assumes 2 persons per efficiency apartment unit.

(3) Assumes 4 persons per room - bunkhouse type occupancy.

Source: Tryck, Nyman & Hayes, September, 1977.

(southwest) from the Standard Oil dock is intended for those commercial uses which would service the medium and low density residential areas on Amaknak Island. Uses might include retail sales, dry goods store, market, offices of several types, etc. The commercial area adjacent to Margaret Bay is intended to house those retail and service, and possibly commercial recreation uses directly associated with the high density residential area surrounding it.

The large commercial land use area along the spit on the Unalaska Island portion of the City is intended to be the retail-service commercial center of the City and every effort should be made to encourage the full range of such uses to develop therein. This should be the location for major shopping facilities in the community as well as service establishments like a bank, barber shop, offices, etc. Efforts should be made to assure compatibility of these uses with the surrounding medium density residential areas. Presently these adjacent areas are developed in low and some medium density residential with individual single family residences on small individually owned lots with an occasional duplex and larger structure.

The commercial areas located up the Unalaska Creek Valley are intended to serve primarily neighborhood commercial needs such as grocery store, gasoline station, and similar uses which would not necessarily require a "downtown" location but which would benefit by being in proximity to residential areas. This commercial classification encompasses land presently owned by the City of Unalaska. It is not recommended that the City develop the commercial uses; rather it is recommended that the City dispose of this land unless a specific use for it is determined. The project consultant considers this portion of the City's holdings to be in excess of need and in the absence of a use it should be disposed. Some consideration might be given to using it as a school site; however, it is not ideally located for this use being at the intersection of two roads and in what may well be a congested area in the future.

c. Seafood Processing Industrial: Particular attention has been given to the land area needs for accomodating expected expansion of the seafood processing industry in Unalaska given the fact of continued heavy dependence upon this industry as the economic mainstay of the community. Presently almost all of the cannery activity is located within Iliuliuk Harbor with one on-shore facility located at Captains Bay and one floating cannery located at Dutch Harbor. The inner harbor area is presently fairly congested given the number of facilities located there now. There is some room for expansion of existing facilities in the harbor, but it is questionable as to how many additional floating cannery operations could be accomodated within the area. Given the projection of a doubling of seafood volume in Unalaska within five years and tripling within ten years, it is imperative that the question of expansion be addressed and suitable locations for expansion identified.

It should be stated that inherent in the following discussion of the seafood processing industry's future use of land is the assumption that the transient housing needs of the industry will continue to be met by the industry. It

is further concluded that the bulk of this need will be met by housing, constructed as need dictates, on site with the processing plant facilities. For this reason the seafood processing industrial land use category is designed and envisioned here to include housing within the multiplicity of secondary uses that necessarily occur at a processing site. Theoretically if one assumes that twenty-five percent (25%) of the 165 acres of land devoted to the seafood processing industrial use category is actually used for housing then some forty-one (41) acres of land will be devoted to housing. Assuming a maximum density of 30 dwelling units (bunk house rooms) per acre with an occupancy of four (4) persons per unit then approximately 4,950 to 5,000 persons would be accommodated in housing located on shore as a secondary use in the seafood processing industry land use category. This assumption is reflected in Table 9 where the holding capacity of the residential element of the Land Use Plan is discussed. The point here is that housing is considered a permitted, although secondary, use in the seafood processing industrial land use category.

To the degree that increased processing volume can be handled by leveling out the heretofore seasonal nature of the industry and converting the existing operations to year around, this will obviously occur. Expansion of existing facilities and development of additional facilities will then follow. To the extent this can be accommodated in the inner harbor area it will occur there. These, however, are decisions which will be made by the individual companies involved and will depend at least in part upon the availability of suitable land with either direct water frontage or access to the waterfront. It is, however, obvious that additional land area outside the inner harbor location must be set aside for future new cannery and processing facilities be they shore-based or of the floating type.

The proposed Land Use Plan contains a total of 165 acres of lands designated for Seafood Processing Industrial, 22 acres on the Unalaska Island portion and 143 acres on the Amaknak Island portion. This includes the existing 25 acres of waterfront lands already developed with such uses. Several major areas have been designated for future expansion.

First are the areas surrounding Margaret Bay and Rocky Point flats. Both of these areas have land suitable for industrial development in that they are flat, have good road access, are presently or can be easily served with sewer and water utilities and have water frontage. Both sites are suitable for shore based cannery or processing facilities. A second area for future expansion of seafood processing uses is the 28 acres on the west channel side of South America. Although this area is subjected to slightly more

wave and wind action than the harbor area, it can be developed for processing facilities. Some excavating of the uplands portion and filling of the tidelands portion may be required in order to fully utilize the potential of the area. It is believed that the area can be utilized for this use without constructing a permanent breakwater.

Another major area for expansion of processing functions is located in Dutch Harbor, along the southeast side of Ballyhoo Mountain and along the inner side of the spit. Both locations may have to be limited to floating processors only since there is almost no uplands area available for development with shore-based facilities on the narrow shelf of the mountain, and since it is not known to what extent, if any, the spit is capable of accomodating structures (and the construction activities associated therewith) of shore-based facilities. However, and this can not be stressed too heavily, thorough geotechnical and engineering study of the spit should be accomplished before any construction is permitted. Natural formations of this type frequently exist in a finely balanced state of equilibrium and any interference with the erosional-depositional processes occurring along the spit or disturbance of its existing state of equilibrium could be disasterous. The spit has been utilized in the past with several military installations, including at least one major dock facility having been constructed. This would tend to indicate that construction can take place without disturbance of the spit's condition. The project consultant recommends that the City seek competent technical assistance in evaluating the feasibility of development on the spit.

Two additional areas, although smaller in size, appear to be capable of being developed with processing facilities. The area along Agnes Beach at the Unalaska terminus of the proposed bridge has been used for cannery use in the past and dockage presently. Some uplands area exists there, although minimal, and it appears that one or more floating processors could tie up in this location although it is slightly more exposed to the wind and the tidal current in the channel than is the opposite side and could prove unusable under strong southeast wind conditions. This site should be evaluated for its potential. The same is true of the uplands area near the junction of the Pyramid Creek road and the Captain's Bay road. Considerable waterfront area with a small, reasonably flat uplands area adjacent, appears to be usable. Additionally, the existing site of the Pacific Pearl Cannery at Captains Bay dock is capable of accomodating considerably more development on-shore than is presently located there. It is possible, however, that the seafood processing activity there presently may phase out of existence in time allowing the dock, storage and transfer operation also located there now to expand. This is conjecture, however, and the bulk of the transfer operation may relocate

to Amaknak Island when the Ballyhoo Dock is completed, thus leaving the Captains Bay site available for expansion of seafood processing functions.

Critical to the operation of the processing function is an absolutely reliable and adequate supply of fresh water. Also important are proximity of housing to the processing facilities, capacity to handle and properly dispose of waste products from processing operations and ease of access for the fishing vessels to the processor. All of these factors must be accounted for in determining suitable locations for the processing function. The sites here discussed appear to meet the criteria or at least have apparent potential for fulfilling those needs.

d. General Industrial. The General Industrial land use classification is intended to accomodate those industrial uses not related directly to the seafood processing function and not necessarily dependent upon a waterfront location although some of the land area classified in this category is adjacent to or on the waterfront. The uses that are intended to be accomodated in this category include manufacturing uses, warehousing, outdoor storage, bulk fuel storage, container van storage, and similar uses. The lands included in this category are located in several places throughout the community. The largest area is on Amaknak Island at Rocky Point south of the Standard Oil fuel dock. Portions of this area are currently used for bulk fuel storage. It is generally an area of rough topography and may present problems if it is desirable or necessary to construct any structure of large size. Considerable recontouring would probably be required. This acreage has frontage upon the water; however, the water depth is shallow and the offshore area is rocky. Because of the marginal building conditions in the area and the absence of any suitable dock site it is not likely that either residential or any water dependent uses would develop in this area by choice.

Additional land area in this General Industrial category is located adjacent to the Standard Oil dock. It is adjacent to the waterfront, gently sloping towards the dock site but regular in topography. It is considered prime industrial land and could serve as back-up land for storage and cargo handling adjacent to the dock or developed for warehousing or manufacturing if such use is forthcoming.

A third General Industrial area is located south of the airport runway, west of the airport terminal. It is located along the beach and is flat and easily developable. This area should be utilized for industrial uses such as those directly related to the Airport and as storage areas and general "back-up" land to the City dock to be constructed at

Ballyhoo dock site on Dutch Harbor. In this regards, ten (10) acres of this area are included in the lands recommended for reconveyance to the City under Section 14(c)(3) of the ANCSA.

A fourth General Industrial area is located west of Expedition Island, on the northern tip of Little South America. This area has water frontage on Iliuliuk Harbor and is, in part, the site of the abandoned U.S. Navy submarine dry dock facility. It is intended that this area will be developed as a marine service center with such uses as a marine ways, boat repair grid, machine-shop and engine and hull repair facilities and retail sales and services related to marine activity. The existing abandoned marine ways could be rehabilitated along with the dry dock and covered building. The land area is adequate in size to allow for additional building or renovation of any of the existing structures which might be salvageable and for retail sales, marine repair and similar businesses.

A fifth General Industrial area is located along the narrow shelf in Dutch Harbor between the airport and the location of the City dock facility now under reconstruction. While there is actually very little land area involved the location is considered a prime industrial area in that it has water frontage, extremely deep water close in to shore and is an excellent site for additional dock facilities. The absence of adequate back-up land behind the dock site location is a drawback, but given the reasonable proximity of back-up lands around Rocky Point and the obvious utility of any land with deep water port capability, the dock potential cannot be overlooked in this location.

The sixth General Industrial area is located at the site of the present Captains Bay dock facility. The area presently has dock, warehouse, outdoor storage, and fuel tank uses along with a seafood processing facility and related housing. As discussed above, it is possible that the seafood processing activity will eventually phase out of this location. The site is a large flat area in excess of 70 acres. The existing dock has been partially renovated recently and plans call for an extension to be added in the near future. While the dock site is not as well protected as those in Dutch Harbor, it is certainly adequate for barges and large oceangoing vessels. This area is considered ideal for any onshore OCS oil and gas activity, i.e. a service and supply base for exploration and development activities. It is not likely that any facilities associated with production of OCS oil and gas, i.e. a tanker terminal, would be located here as discussed previously. However, the area is suitable for a supply base and would be capable of handling a considerable portion of all the onshore service

and supply function for exploration drill rigs within several hundred miles of Unalaska. The area is somewhat remote, approximately 2.5 miles by roadway, from the central area of the community with almost no development in between. This poses some question as to whether it is economically practical at this time to extend sanitary sewer facilities to the area from the town center. This service could be handled on-site with a package treatment plant. The present water supply to the area from the City's Pyramid Creek source could be expanded to meet demand. Being remote from the town center, however, is favorable for the heavy industrial uses that would occur on the site were it to be developed as an OCS supply base. The remoteness would mitigate any negative impacts incompatible development might otherwise be subjected to were it adjacent. The City should attempt to coordinate use of this location for OCS activity with industry representatives at an early time in advance of any activity actually being initiated. In this way, local concerns relative to OCS impact upon the community could be ameliorated and adequate safeguards for environmental factors could be assured.

e. Public Facilities and Lands: One hundred and fifty six (156) acres of land area has been designated for public facilities and public lands uses. Parks, recreation and open space uses and the Unalaska Creek water supply preserve are not included in this category. One hundred and twenty two (122) acres are located on Amaknak Island including some 67 acres in airport and related uses, and 32 acres on Unalaska Island. Each of the sites is briefly discussed in the Community Facilities Plan Element.

f. Quasi-Public and Institutional. The Quasi-Public and Institutional land use category is intended to accommodate those uses which are semi-public or even public in their use or purpose but which may actually be owned and/or operated by a private entity. Such uses as churches, RCA Alaska Communications, the Iliuliuk Family Health Service facilities, the Russian Mission Church and similar uses would be included. Sixteen (16) acres of this category are shown on the Land Use Plan map.

g. Parks, Recreation and Open Space. The Parks, Recreation and Open Space land use classification includes lands intended for a number of public uses. There is a total of 97 acres of land in this category, 41 on Unalaska Island and 56 acres on Amaknak Island. Generally two types of land have been included in this category. Lands which are intended to serve as parks or recreation facility lands have been included. Also, lands which are recommended for restriction of development by virtue of their possessing some natural feature which indicates the area should not be developed have also been included. Examples of this latter type include areas subject to wave erosion along the beach

or when sloughing or sliding is prelevant. In most cases a parcel of land which possesses a natural feature which indicates it ought not to be developed can also serve the function of open space. However, the City would be obligated to acquire lands in this latter category if it ever desired to develop any public recreational uses of these areas. Although land areas with slope angle exceeding 25 percent by virtue of their being undevelopable become defacto open space, they are not included in this category. All of the areas specifically recommended for park or recreation use are discussed in the Community Facilities Plan element. Several of them, however, merit particular comment here.

A greenbelt area is shown around the entire perimeter of Unalaska Lake. This lake has excellent recreational potential and the land area immediately around it should be reserved for recreational use. Additionally the lake has potential as a future community water supply. Precaution should be taken to prevent any pollution of the lake from urban runoff, septic tank effluent or siltation. The greenbelt buffer around the lake will aid in this protection.

A greenbelt preserve area has been shown around the large lake on Amaknak Island that previously served as a water reservoir for the military facilities on the Island. This greenbelt area is recommended to preserve the aesthetic value of the lake and additionally to preserve the many trees which exist in this area. As noted previously, these trees were planted by Russian settlers on the Island in the early 1800's and should be preserved for their historical significance.

The entire shoreline along the northwestern side of Amaknak Island is shown in the Parks, Recreation and Open Space classification. This area is being constantly subjected to wave and wind erosion. Building in this area within approximately 100 to 150 feet of the high tide line or bluff line should be prohibited. Several points along the shoreline offer excellent views of Hog Island and the Broad Bay-Nateekin Bay area and thus have unique qualities as open space. It is recommended that this shoreline be protected; the prohibition of development on or adjacent to the beach and classification of the immediately adjacent uplands as open space will aid in this effort. Roadways exist along certain portions of this shoreline area. They are located inland from the areas here recommended as open space and do not therefore interfere with nor are they incompatible with an open space strip along the shoreline. Both of these roadways are recommended for designation as part of the community's arterial roadway network. When these roadways are improved, their final design and right-of-way location

should be determined in consideration of the recommended open space strip and the desirability of preventing development within the strip.

h. Undevelopable Land Areas. An estimated 8,404 acres of land area, 6,762 on Unalaska Island, and 1,642 acres on Amaknak Island, are classified as undevelopable by virtue of their being in areas of 25 per cent or greater slope or part of the Unalaska Creek water supply preserve.

The areas shown as Water Supply Preserve on Unalaska Creek and Pyramid Creek are not the total watershed of each stream. The total watershed areas for both creeks is much larger in size. In the instance of Pyramid Creek, the area shown on Figure 19 is the area from which water runoff is directly tributary to the small lake created by the dam on Pyramid Creek from which the Municipality draws water to supply the municipal system. In the case of Unalaska Creek the area recommended for water supply preserve (Figure 19) includes the area tributary to the lake created by the dam as well as land area from which water drains into the two west forks of Unalaska Creek which can, in the future, be dammed for development of additional water supply. It is recommended that these areas be restricted from development to preserve their future use as water supply. Of the 1,250 acres total in the Unalaska Creek Water Supply Preserve, all but 90 acres, or 1,160 acres, are within the present City limits. None of the Pyramid Creek Water Supply Preserve area is located within the boundary of the City. No development should be permitted in these preserves and public access to these areas should be controlled so as to minimize the potential for pollution to the streams. Any access road building activity in or adjacent to these areas, if it is permitted, should be accomplished in such a manner as to prevent any siltation of the water intake lakes.

The areas designated in the Undevelopable category which have 25 per cent greater slope were determined by carefully reviewing available topographic mapping. Because the mapping was at a scale of 1 inch equals 1,666 feet with contour intervals of 100 feet, extremely conservative judgment and interpretation was made to assure that land with marginal slope angles, i.e., 20-24% would not be classified undevelopable. Thus, it is probable that some land exceeding 25% slope, i.e., 26-28% angle, has been included in the undevelopable category. The 8,404 acre figure, is thus generalized and conservative. There are undoubtedly "pockets" of acreage within the areas shown on the map as having 25% or greater slope angle which in actuality do not exceed this criteria. The scale of mapping available, however, does not permit their being identified. Access to the "pockets" most probably is through an area of 25% or greater slope angle,

however. When and where such areas are identified and a desire is expressed to develop them, development according to the Rural Low Density Residential (1 dwelling unit per acre maximum) criteria should be permitted only after it has been demonstrated that onsite sanitary facilities can be safely operated. The City, however, should not assume the financial burden of extending public sewer and water service or road building and maintenance service to these areas. Given the point that there is ample developable land to accommodate more than twice the highest population projected for Unalaska, the City should not be concerned about the restricting of development in these areas causing a shortage of land for development or about City policy against serving these areas with public sewer and water causing an artificial land shortage.

Within the Undevelopable land category, two areas merit additional comment. Little South America and the majority of Ballyhoo Mountain contain slopes over 25% angle. There is a notable absence of topsoil and vegetation in the areas and topography is extremely irregular. The areas are very unsuitable for development. Ballyhoo Mountain reaches an elevation of 1,634 feet above sea level while the top of Little South America is 421 feet above sea level. Both of these locations are sites of former major military installations of many types, including shore gun emplacements, observation posts, communication centers, entrenchments, ammunition storage bunkers, personnel facilities, etc. All of these facilities have, of course, long since been abandoned. The previous Community Development Plan for Unalaska recommended that both of these sites be set aside as National Landmarks commemorating World War II. This recommendation remains valid in the opinion of the project consultant. It is therefore recommended that both these areas be so designated. Specific study by the appropriate state or federal agency would be required to determine the exact area for inclusion. The City could initiate this proposal by requesting the federal government to evaluate the two sites for inclusion in the system.

The foregoing discussion has briefly outlined the major elements of the Land Use Plan. Table 10 gives the specific acreage figures for the various land use classifications shown on the plan map.

4. ANNEXATION. One of the objectives of this planning project is to ascertain if additional land area should be annexed into the City of Unalaska. Generally, the purposes for which a municipality annexes territory to its jurisdiction is to place areas of future community expansion within the corporate limits of the City, to include land and water and

TABLE 10
CITY OF UNALASKA, ALASKA

LAND USE PLAN

Land Use Classification	UNALASKA ISLAND		AMAKNAK ISLAND		TOTALS	
	Acres	Acres	Acres	Acres	Acres	Acres
<u>Rural Residential Low Density:</u> Max. 1 DU/ac. Dev. Permitted with on-site utilities.	113	-0-	113			
<u>Urban Residential Low Density:</u> 1, 2 & 3 fam. D.U.'s Max. 1 DU/ac w/o utilities; 5 DU/AC w/utilities req.	829	100	929			
<u>Urban Residential Med. Density:</u> Max. 16 DU's/ac utilities req.	191	11	202			
<u>Urban Residential High Density:</u> Max. 30 DU's/ac Utilities req.	8	43	51			
<u>TOTAL RESIDENTIAL:</u>	1,141	135	1,276			
<u>Gen. Commercial:</u> inc. retail, service, hotels, offices.	18	20	38			
<u>Seafood Processing Industrial:</u> incl. canneries, warehousing, storage, etc. as related.	22	143	169			
<u>General Industrial:</u> incl. whole-sale, storage, fuel storage, dock facilities, manuf., etc.	82	82	164			
<u>Public Facilities & Lands:</u> schools, pub. safety, rec. centers, D.P.W., utility stations, airport, etc.	34	122(1)	156			
<u>Quasi Public & Institutional:</u> RCA, churches & similar.	16	-0-	16			
<u>Parks, Rec. & Open Space.</u>	41(2)	51	97			
<u>TOTAL DEVELOPABLE LAND:</u>	1,197	423	1,620			636
	1,338	558	1,896			1,896
<u>Undevelopable Land Areas:</u> Unalaska Cr. Water Supply Preserve Slopes 25% or greater, or otherwise inaccessible.	1,160	1,642	2,802			1,160
	5,602		5,602			7,244
<u>TOTAL UNDEVELOPABLE</u>	6,762	1,642	8,404			8,404
<u>TOTAL:</u>	8,100	2,200	10,300			10,300

NOTE: The acreage figures used in this table are approximations.
(1) Does not include 9 acres of lake designated for emergency fire fighting water supply or the U.S.C.G. Lighthouse reserve

shoreline areas over which the Municipality must exercise land use controls to assure that future development in these areas is compatible with land use on the periphery of the present boundaries, or because land owners and/or residents of the areas outside the City request annexation to the City in order that they may receive municipal services.

Using these three reasons as guidelines, the project consultant has analyzed the area surrounding the present City limits to determine if any areas should be annexed into the City of Unalaska. With respect to the reason of needing additional lands to accomodate community expansion, it is questionable whether annexation would be justified solely on this basis. Secondly, there are no residents or land owners in adjacent areas which are known to desire or who have requested annexation. On the question of the need to annex additional territory for purposes of exercising land use control over the areas, there is a strong argument that the City of Unalaska should annex considerable land area. There are several areas, including Summer Bay, Nateekin Bay and the entire Captains Bay area where some development is likely to occur in the next five to ten year time frame. Depending on the type of development, the City of Unalaska definitely should exercise land use control over these areas. The purpose of exercising such control would not be to prohibit or unreasonably restrict development and use of any of these areas; rather the purpose would be to place the City in the position to prescribe minimum standards for any development that does take place in these areas and to assure that development in these areas is consistent with the City's Land Use Plan and the Coastal Management Plan. It should be recognized that future development in these areas will have an impact upon the present developed area of the community. Development of any large scale in any of these areas could have impact upon the present City of Unalaska.

Figure 15 illustrates a proposed new City of Unalaska corporate limits. It includes all of Captains Bay and the shoreline, and some of the lands at the head of the bay. It also includes the waters of Nateekin Bay and Summer Bay and some of the uplands adjacent to these waters. Precisely how the City annexes these areas, or whether they are annexed separately has not been considered. It is recommended, however, that the City consider filing a petition with the State Local Boundary Commission in the future to initiate annexation proceedings according to the recommendation. Procedures for annexation are spelled out in Title 29 of the Alaska Statutes and the rules and regulations of the Local Boundary Commission. Assistance from the State Department of Community and Regional Affairs should be sought in this effort. If, in fact, these areas are proposed formally for

annexation, a generalized land use plan should be prepared for each of the areas. These areas have not been considered in the Land Use Plan or any of the other plan elements presented in this report.

PRELIMINARY BOUNDARY DESCRIPTION. The following description includes all of the land and water areas that would be contained within the boundary of the City of Unalaska if the recommended annexation were implemented.

Beginning at the south peak of Split Top Mountain on the east shore of Unalaska Bay, 53°56'N latitude, 166°26'W longitude; thence, southeasterly 2.75 miles to the peak of an unnamed mountain, 53°54'N latitude, 166°23'W longitude; thence, southwesterly 6.73 miles to the peak of Artillery Peak, 53°49'N latitude, 166°29'W longitude; thence, southwesterly 2.57 miles to the peak of Portal Peak, 53°48'N latitude, 166°32'W longitude; thence, westerly 5.32 miles to the peak of an unnamed mountain, 53°48'N latitude, 166°40'W longitude; thence, northerly 4.28 miles to the peak of an unnamed mountain, 53°53'N latitude, 166°40'W longitude; thence, northeasterly 2.77 miles to the meanderline of Broad Bay, 53°54'N latitude, 166°38'W longitude; thence, northeasterly 5.58 miles to a point, 53°57'N latitude, 166°31'W longitude; thence, southeasterly 3.33 miles to the Point of Beginning.

C. COASTAL MANAGEMENT ELEMENT

The Coastal Management Element is intended to spell out the policies and guidelines under which the City will manage the lands on the coastline within the Community. It establishes the procedural guidelines for assuring citizen input to the decision making process and for achieving coordination among the many users of the coastal zone and the various levels of government with regulatory and enforcement responsibilities over uses in the coastal zone. The Coastal Management Element must be considered in context with the other Plan Elements; i.e., the Land Use Plan establishes the basic guideline for uses and the Coastal Management Element carries the planning one step further in the endeavor to give special attention to the coastal zone and its unique qualities. While the Coastal Management Element is a relatively new "thing" in Community Development Plans, it serves to bring into sharper focus the special aspects of the Land Use Plan that relate to the Coastal Zone.

1. ORGANIZATIONAL FRAMEWORK FOR COASTAL MANAGEMENT.

As discussed above, the basic concepts involved in Coastal Zone Management legislation are severalfold, stemming from the fundamental concern of coastal sensitivity to development and the frequent lack of sufficient consideration of this sensitivity. These concepts are: the utilization of a planning process that considers environmental as well as social and economic factors, and local as well as greater than local perspectives; adequate opportunity for public input in all phases of the process; and the coordination among various users of the coastal area, including the different levels of government. The existence of an organizational framework in the City of Unalaska sufficient to address these concepts will be discussed below.

While the initial impetus, on the national level, for a coastal zone management law was concern for uncontrolled development of the coastal areas, the enacted federal and state legislation has several items of concern. The Alaska Coastal Management Act notes a number of interrelated objectives of the Act which affect more than just environmental protection. AS 46.35.020 states these objectives as:

- (1) The use, management, restoration and enhancement of the overall quality of the coastal environment;*
- (2) The development of industrial or commercial enterprises which are consistent with the social, cultural, historic, economic and environmental interests of the people of the state;*
- (3) The orderly, balanced utilization and protection of the resources of the coastal area consistent with sound conservation and sustained yield principles;*
- (4) The management of coastal land and water uses in such a manner that, generally, those uses which are economically or physically dependent on a coastal location are given higher priority when compared to uses which do not economically or physically require a coastal location;*
- (5) The protection and management of significant historic, cultural, natural and aesthetic values and natural systems or processes within the coastal area;*
- (6) The prevention of damage to or degradation of land and water reserved for their natural values as a result of inconsistent land or water usages adjacent to that land;*
- (7) The recognition of the need for a continuing supply of energy to meet the requirements of the state and the contribution of a share of the state's resources to meet national energy needs; and*
- (8) The full and fair evaluation of all demands on the land and water in the coastal area.*

a. Existence of a Planning Process. One of the statutory requirements placed on any First Class City in Alaska located outside an Organized Borough is that the City provide for planning, platting and zoning (AS 29.43.040) within its boundaries. The City of Unalaska, in Chapter 16 of its Code of Ordinances, establishes itself as being committed to the planning process, with the City Council as the adopting authority and a Planning and Zoning Commission as a recommending body. There is no explicit requirement in the Ordinance that "environmental as well as social factors" be considered in the planning process, nor is there any requirement that factors "of more than local concern" be considered in the process. There is also no requirement for particular consideration of coastal areas. The lack of explicitness in these areas is typical of municipal ordinances, and as indicated above, is one of the reasons for enactment of Coastal Zone legislation. The City does have various types of licensing provisions under Chapter 3 of its Ordinances, and building permit requirements under Chapter 5. These, along with platting and zoning requirements, are the primary tools of control of development.

There are, of course, a number of other means available to the City for implementation of policies related to the coastal management program. Subdivision regulations, for example, could be used to describe various standards of design for types of development of particular concern to the program. The construction of municipal capital projects is another very powerful tool for guiding development. The decisions with respect to the type of project to build, and its location, e.g., road construction, can very strongly influence development in the coastal area, or elsewhere for that matter. These are discussed further in the Plan Implementation section of this report. Thus, between existing authority and those proposed in this Plan, the City has a fairly extensive regulatory system.

b. Opportunity for Public Input. Public hearings, public notice, and the requirement for open public meetings of the Council are contained in several portions of the City of Unalaska's Code of Ordinances. Notable are: Sections 1.040, 2.035, 2.040, 2.075, 16.005(c)2, 16.600C, 16.700 B and C, and 16.804. One of the most appropriate opportunities for public input concerning coastal management is during the annual review of the community goals and objectives, as discussed previously. At that time all facets of life in the community should be discussed on a broad policy basis, with each goal viewed in relation to the other goals or desires of the community.

c. Coordination Among Levels of Government and Coastal Users. There is no explicit requirement in the Unalaska City Code of Ordinances requiring specific notification

of any particular group or agency as a general matter of course when matters related to planning or land use in the coastal zone are being considered. Existing state and federal laws require agency notification and approval for certain types of development in certain locations, e.g., the requirement for a U.S. Army Corps of Engineers permit for any construction in navigable waters, and local actions must comply with those laws.

In summary, the City of Unalaska does have the provisions for general consideration and enforcement of development, as do all municipalities of its class in Alaska. As has been generally true of municipalities, there are no specific provisions pertaining to the intergovernmental and interdisciplinary coordination required by Alaska's Coastal Management Act. These are deficiencies which the City Council must correct if the City is to have an effective and legally acceptable coastal zone management plan and program. It is recommended that the Council seek the assistance of the City's legal counsel in preparing amendments to the Code of Ordinances reflecting these changes. This should be accomplished at the earliest possible date to bring the City in conformance with the requirements of a coastal management program.

2. COASTAL MANAGEMENT POLICY CONSIDERATIONS. The Alaska Coastal Policy Council is charged with defining the framework, as discussed above, under which the Districts are to prepare their Coastal Management programs. Because it will be approximately six months (mid-1978) before the Council guidelines are prepared and approved by the State Legislature, it does not seem advantageous for the City of Unalaska to adopt a District Coastal Management Program until the guidelines have been approved.

It is very definitely in the interests of the City of Unalaska, however, to become thoroughly familiar with the requirements of State and Federal law, and to discuss and decide what sort of program Unalaska desires under these requirements. It may well be that the Coastal Policy Council may be considering guidelines which are significantly different from what is desired by Unalaska area residents, in which case the City will want to request the Council to either change their guidelines, Unalaska's desires. Failing that, the City may wish to appeal to the State Legislature to not approve the undesired guidelines. In any case, the sooner the Unalaska City Council reviews the statutes on Coastal Management, the more Unalaska will be able to successfully deal with the issue. (See the Coastal Zone Management portion of the Plan Implementation section below.)

A detailed review of State and Federal laws on the subject is beyond the scope of this study. However, there are several concepts embodied in both Acts which should be noted. Some of these are listed below as they pertain to each portion of the District Coastal Management Program, as contained in AS 46.35.030.

a. Coastal Zone Boundary Identification. This issue will be discussed in greater detail below.

b. Uses Subject to the Program. The question of defining which particular type of land use should be subject to the scrutiny of the Coastal Management Program is a crucial consideration. AS 46.35.040 (4) and AS 46.35.210 (6) require that "uses of state concern" be considered. Generally these are uses which are either major in scope or have some significant effect on people outside the Coastal District, such as the siting of OCS facilities.

c. Policies Pertaining to Subject Uses. This issue is the heart of the Coastal Management concept. The broad framework is what the philosophies of the people who live in the District feel about various forms of development and government control, as well as their ability to influence control by other levels of government. AS 46.35.020 (4) requires that a prioritization of types of uses be determined.

d. Proper and Improper Subject Uses. An outgrowth of the previous step, it is the application of the particular policies adopted on the uses defined as being subject to the Program. It should be noted that the Coastal Management Program goes beyond the Coastal Zone boundaries, as AS 46.35.020(6) makes one of the objectives of the Program the prevention of uses on adjacent lands which will result in degradation to land and water in the Coastal Zone reserved for their natural values.

e. Policies and Procedures Pertaining to Determination of Allowability. This step anticipates that there will be many "borderline" uses, as well as possible future change of viewpoints, and requires that specific procedures be established to consider the various classifications. AS 46.35.040 (5) specifies that there will be procedures established for coordination with Federal agencies with coastal interests, as well as the previously discussed coordination with state agencies on certain type of use.

f. Designation of Areas Meriting Special Attention. This issue will be discussed below.

g. Policies Applicable to Special Attention Areas.
As indicated above, the intent of the Act is to pinpoint the more sensitive areas within the Coastal Zone and put them under more stringent scrutiny. This issue is analogous to c. above. AS 46.35.020 (3) points out that conservation and sustained yield is an important goal.

h. Adoption of Regulations. As with any other policy mandates, specific regulations must be adopted for their implementation. Because any policy statement has a range of interpretations, the wording of specific regulations in actuality constitutes another level of policy decisions. Additionally, the failure to operationally implement adopted ordinances has the effect of negating those ordinances.

3. COASTAL MANAGEMENT BOUNDARIES. One of the more controversial aspects of Coastal Zone Management and one of the most ambiguous aspects of existing federal and state legislation is the definition of the Coastal Zone on the landward side. The CZMA states that the landward boundary is "inland from the shorelands only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on coastal waters".*

This definition has a wide variety of interpretations, depending both on the physical configuration of any given area, the viewpoints of the people who are doing the defining for a given area, and the viewpoints of those responsible for approving the Coastal Management Program definition. Various proposals in the Alaska Legislature, for example, range from defining the tidal area as being the complete coastal zone, to the landward boundary being all that land area drained by streams containing anadromous fish.

While neither of these extremes seems likely to be adopted by the Alaska Coastal Policy Council, the variety of boundaries adopted by other states almost rivals these extremes. For example, the following inland boundaries were chosen by the respective states:

Virginia - A vertical elevation above mean low water equal to 1.5 times the mean tide range.

Louisiana - Three miles inland from the shoreline.

*P.L. 94-370 and P.L. 92-583, Sec. 304.

- Texas - The inland boundary of the coastal counties (about 35 miles in actuality).
- Oregon - Inland to the crest of the coastal mountain range (approximately 30 to 40 miles).
- Washington - Two hundred feet inland from mean high water.

With the latitude of the inland boundary going from the crest of the first sand dune to the crest of the first mountain range, obviously a wide variety of conditions and opinions exist.

With the wide variety of physical conditions that exist in Alaska, adopting statewide criteria will be one of the first problems facing the Coastal Policy Council. The following discussion and recommendations apply only to Unalaska and its unique conditions, and are intended to serve as a focal point for consideration. It should be noted that the Alaska Department of Fish and Game is in the process of inventorying existing biophysical resources in the coastal areas of the state. Their report is to be available in January, 1978, and ADFG personnel will be available to assist communities in the application of data from their report to aid in determining the definition of coastal management boundaries.

Geographically, the most remote point on the City boundary is Artillery Peak, which is approximately four miles from salt water. However, most of the development, including residences, are within one-quarter mile of salt water, with the heaviest commercial and industrial development being immediately adjacent to the shorelands. Geologically, most of the land-water interface is composed of very steep mountains, which are solid rock overlain with just a foot or two of soil and organic material. The result of this geology is that activity occurring on the seaward side of these mountains, such as a slide or oil spill, would very quickly end up in the shore area. Conversely, ocean erosion of these areas could result in a very significant change in topography, again ending up in the shore area.

The Alaska Coastal Management Act, and the CZMA, both define an "area which merits special attention" as a subregion within the coastal zone. These "special attention" areas are those which, for a variety of reasons, are particularly important from either the environmental, social or economic standpoints.

For the above reasons, it is recommended that the inland coastal zone boundary, in the case of Unalaska, be those watersheds within the City limits that drain directly into salt water. Figure 16 shows a map delineating this boundary. It is further recommended that the "area which merits special attention" be that land within the coastal zone from low water to the one hundred foot elevation. Figure 16 also delineates this boundary. Under these definitions, the furthest inland the coastal zone would be is a little over two miles from salt water.

D. HOUSING ELEMENT

Adequate housing, both in terms of quality and quantity, is an essential ingredient in the desirability of the community's living condition. It is a major factor affecting future community growth and health of the local economy. Without sufficient safe and sanitary housing, no community can sustain its viability.

1. HOUSING INVENTORY. A housing survey was conducted in the Unalaska community to gather data about number and type of dwelling units, general condition of housing, and vacancy factor. This survey, conducted by visually inspecting each dwelling from an adjacent street, provides only general condition data. No specific data was gathered about the presence or absence of electrical, plumbing or heating facilities and no inspection of the interior was conducted. The survey is adequate for its intended purpose. In order to determine housing quality, three definitions of quality were developed and used in the inventory. They are outlined below.

- "Good" *Housing of above average appearance and condition. New housing, or housing of an obvious well-maintained state, with no structural deficiencies apparent.*
- "Average" *Basically sound structures with few wall or roof deficiencies. May be in need of paint or other minor upkeep, but adequate from an overall standpoint.*
- "Poor" *Housing of obvious structural deficiency, needing repairs to roof, walls or foundation, or a combination. Doors and/or windows may be in need of replacement; may be beyond a point of repair to "Average" or "Good" condition.*

The "norm" against which housing condition was measured consists of the "average" Unalaska house - about 800 square

feet in floor area, single story, wood frame dwelling with a wood foundation. This house is more than ten years old and uses fuel oil for heating. It is generally in fair structural condition, and may need some improvement such as better electrical wiring, insulation, roofing or painting.

Federal programs, and to a limited extent State programs in Alaska, in recent years have placed heavy emphasis on improving existing housing conditions and the supply of available housing. Programs have been developed which are intended to induce construction of more housing in areas where existing housing is in short supply. Programs exist to provide financial assistance to low income segments of the population and to small remote communities which generally are out of the mainstream of housing construction by virtue of higher than average materials and labor costs, low labor availability and lack of building capital. Such efforts by government have been of varying success for a variety of reasons, not the least of which is the point that housing development has historically been a venture of private enterprise and not a governmental activity. Additionally, with respect to materials, construction and design technology, the housing industry is only beginning to show signs of utilization of all the potential factors which could speed the availability of and reduce the cost of housing to America.

Housing is a critical problem in Unalaska; it may well be the single most critical problem in the community. An inordinately high percentage of the existing housing is old; many units are in need of major repair or border on being unsafe. There is almost no vacancy rate in available housing, a situation not uncommon in Alaska's remote communities. Numerous residents stated to the project consultant that they desire to upgrade their present housing or to construct new housing but cannot do so because of excessively high cost of materials and the unavailability, locally or even through lending institutions statewide, of capital to finance new housing or improvements. In an effort to clarify this point, the project consultant met with representatives of lending institutions which are active in the residential lending market statewide in Alaska and with representatives of the U.S. Department of Housing and Urban Development. These discussions indicate the following to be the situation with respect to this point. There is no legal or programatic reason why federally insured housing mortgage money would not be available for Unalaska. Any of the federal lending or insuring programs are applicable to Unalaska. The same is true in the case of so-called conventional mortgage money. It is true that there is no lending institution or banking facility in Unalaska presently. At least one bank in the state is reportedly evaluating locating a branch facility in the community. The absence of a banking facility

in Unalaska, however, has no bearing on whether housing mortgage money is available to the community. None of the banks report any policies or practices aimed at restricting or denying housing financing to Unalaska. Such practices would in fact be contrary to federal law.

It appears that a number of points work to restrict, if not, in fact, effectively deny flow of housing finance loans to Unalaska, however. This situation though is not unique to Unalaska but is generally true of most remote, sparsely populated non-urban locations in Unalaska. Among these are the remoteness of the community, the high cost of housing materials and construction labor, problems and costs to the financial institution in servicing a loan through its life, the previously imposed maximum ceilings on federally insured mortgages which work to limit participation by Alaskans in such programs, and most importantly, the frequently experienced problems associated with land title in many Alaska communities.

It therefore appears that the situation with respect to the availability of financing for housing in Unalaska is no different than it is in many other communities in Alaska. Housing costs are high and federal programs do not recognize the many factors built into the "system" which are unique to Alaska.

Of the 213 permanent dwelling units recorded in the survey, 131 (62%) were rated "good", 52 (24%) were rated "average", and 30 (14%) were rated "poor". This indicates that nearly half the residences in the community are in need of at least some repair.

The large percentage of older housing in the community is a result of several apparent factors. The high cost of shipping has made it difficult to purchase building materials at a reasonable cost in the City. There is a definite lack of professional builders in the community, thus, most new construction has been "do-it-yourself".

The lack of a lending institution in the community, as noted above, seems, in the minds of local residents, to be the biggest factor affecting housing in Unalaska. People are not able to get loans for home construction or improvement.

A large percentage of the housing units in the community are surplus military dwellings, having been moved to their present location in whole or piece by piece. On Amaknak Island, housing tends to be divided into two groups; the renovated military surplus housing, and the recently added housing units, mobile and modular homes.

The trend of relocating and renovating the surplus "cabanas" found throughout the hills in the vicinity seems

to be continuing, due to the lack of other ways to build new dwelling units. Cabanas, however, offer only a short-term solution to a long time problem of housing needs. Their old age and the limited number of usable units will soon eliminate their potential, and other sources of building materials will have to be found by those wishing to develop their own housing.

A large portion of the housing in the community is provided by the seafood processors onboard ship. More than 850 employees of the several processors are housed aboard the processing ships themselves or on an adjacent floating ship. It is expected that this type of housing will be used for transient workers for some time to come, as some of the processors have recently remodeled these living quarters to comply with requirements issued by the State Fire Marshall's Office. Additional onshore, permanent dormitory-style housing for transient workers is provided by several of the processors. More than 250 people are housed in this manner, with housing for an additional 125 workers under construction at the time of this inventory.

The interspersion of housing within the industrial area occupied by the fish processors is a result of prior shortage of privately-owned, buildable land with utilities. The on-shore housing, consisting mostly of dormitory-style bunkhousing, multi-family residences, trailers, duplex and single-family housing units, has been placed wherever possible, outside areas planned for immediate use by the respective processor. As the industry expands, it may be found that prime needed industrial locations are occupied by housing units which could well have been placed elsewhere.

Possible land use conflicts and incompatibilities exist between some types of dwelling units and industrial/fishing activities adjacent to them. Dormitory and bunkhousing may be quite compatible with processing activities, as all residents of this type of housing work during the time of highest noise and activity levels of the industry. In essence, when the residents are at home, the processors are quiet, creating little if any incompatibility. Residences accomodating families located adjacent to processors may find considerable conflict and incompatibility, as children and/or a spouse not working (or working at times other than those common to the processors' operations) may find the noise and activity associated with the industry disconcerting and hazardous.

Analysis of the housing inventory data indicates that at the time of the survey, 213 permanent (including mobile homes) family dwelling units were available in the City; 1,128 bunks were available for transient workers in the seafood processing industry. An additional 137 units were

under construction at the time of the survey. All housing units that apparently were occupiable were noted. A total of 10 of these units were vacant, representing a 4.6 percent vacancy factor. Of these 10 vacant residences, however, six (6) were noted to be in a "poor" condition, which may be the reason they were no longer occupied. The four (4) remaining dwellings represented a 1.9 percent vacancy factor.

Tables 11 and 12 present the housing inventory data.

TABLE 11
HOUSING QUALITY INVENTORY
City of Unalaska, Alaska
June, 1977

TYPE OF DWELLING	NUMBER OF DWELLING UNITS				% of Total
	Good	CONDITION (1)		Total	
		Average	Poor		
Single Family Detached	45	35(3) (2)	30(6) (2)	110	52%
Duplex Residence	24	2	--	26	12%
Apartment Units	25	7(1) (2)	--	32	15%
Mobile Home	<u>37</u>	<u>8</u>	--	<u>45</u>	<u>21%</u>
Subtotal:	131	52	30	213	<u>100%</u>
Dormitory Housing - Units on-shore		256(3)		256	
Dormitory Housing - Units on-ship		872(3)		872	
Hotel-Motel Rental Units	<u>21</u>			<u>21</u>	
Subtotal:	<u>21</u>	<u>1,128</u>	<u>-0-</u>	<u>1,149</u>	
Totals:	152	1,180	30	1,362	

(1) See text for definition.

(2) Indicates number vacant at time of survey.

(3) Arbitrary condition assumption as no complete survey of these units was made.

Source: Tryck, Nyman & Hayes, Housing Inventory, June, 1977.

TABLE 12

SEAFOOD PROCESSING INDUSTRY-RELATED
AND OTHER HOUSING-UNALASKA, ALASKA

JUNE, 1977

<u>Seafood Processing Housing(1)</u>	<u>Number of Units Existing</u>	<u>Number of Units Under Construction</u>	<u>Total</u>
On-Ship Housing	872	-0-	872
On-Shore Dormitory Housing	256	127	383
Multi-Unit Family Housing	10	10	20
Mobile-Modular Housing	31	-0-	31
Duplex Dwellings	6	-0-	6
Single Family Dwellings	13	-0-	13
	<hr/>	<hr/>	<hr/>
Subtotal:	1,188	137	1,325
<u>Other Housing</u>			
Multi-Family Housing Units(1)	22	-0-	22
Mobile-Modular Units	14	-0-	14
Duplex Housing Units	20	12	32
Single-Family Housing	97	1	98
	<hr/>	<hr/>	<hr/>
Subtotal	153	13	166
	<hr/>	<hr/>	<hr/>
TOTAL:	1,341 (1)	150	1,491

(1) Does not include hotel/motel-types of short-term temporary living units (9 operated by seafood processors, 12 operated by others). Total figure of 1,362 D.U.'s in Table 11 includes 21 such units (1,362 minus 21 equals 1,341 in this table).

Source: Tryck, Nyman & Hayes, Housing Inventory, June, 1977.

2. AREAS FOR FUTURE HOUSING DEVELOPMENT. Land area within the City suitable for development of housing has been identified. These areas are shown on the Land Use Plan map, Figure 14. It is important to note here, as has been stated previously, that there is adequate land area for housing in the City for even the population associated with the highest economic-population growth scenario presented. A variety of housing types and density have been provided for in the Land Use Plan. It is recommended that the City prohibit housing (and other) development on areas where slope gradient exceeds 25%, within the suspected floodplain of Unalaska Creek and along those beach bluffs where significant wind and wave erosion is taking place. Additionally, certain areas are identified as being especially sensitive by virtue of their location on segments of the coastline and in areas of specific marine habitat. These areas are identified in the Coastal Management Element. No such areas have been recommended for prohibition of development; however, permitted development should be accomplished under strict guidelines designed to minimize those conflicts and possible damage to the marine and upland environment.

3. FUTURE HOUSING NEEDS. The difficulty noted in attempting to forecast population levels for Unalaska is present, and even to a greater degree, in attempting to forecast housing demand. The assumptions concerning the type of employees, i.e. residents or non-residents (transients) who hold the future jobs, must be added to the assumption of the number of jobs that will be available. This compounds the problem by increasing the uncertainty of the forecast. The basic assumption which must be made in projecting housing needs pertains to the seasonality of employment. It will be noted that the non-residential employment figures cited in Table 6 are for average employment and, as discussed previously, employment in Unalaska is highly seasonal, but shows a decreasing trend in this regard. It is assumed, therefore, that while the residential population will remain constant throughout the season, the transient population will range from a peak population of from 47 percent above the average, as it did in 1976, to 33 percent above the average by 1982 and 25 percent above the average by 1987. The number of housing units required for transient labor non-residents is assumed to be equal to the peak employment. Table 13 below shows the number of family dwelling units and transient labor housing units required under the different population assumptions for 1982 and 1987.

It should be noted that most of these projections are based on the 1976 residential population estimate of slightly over 500 people. Should the reason arise for revising this estimate, or should more accurate data become available in subsequent years, it would be advisable to rework these calculations to achieve more accurate and timely projections.

TABLE 13
PROJECTED HOUSING DEMAND
 Unalaska, Alaska

	NUMBER OF HOUSING UNITS					
	1982			1987		
	Low	Moderate	High	Low	Moderate	High
<u>Population:</u>						
Resident Population	1,329	2,961	6,357	2,322	5,703	13,443
Non-Resident Population	1,657	1,288	1,425	2,507	1,774	2,082
Total Population:	2,986	4,249	7,782	4,829	7,477	15,525
<u>Required Housing Units:</u>						
Required Resident Family Housing Units	557	1,242	2,665	974	2,391	5,637
Required Non-Resident Transient Labor Housing Units	2,204	1,713	1,895	3,334	2,359	2,769

NOTE:

Existing Permanent Resident Housing Units, 1977 - 213.
 Existing Transient Labor Housing Units, 1977 - 1,128.

Source: Tryck, Nyman & Hayes, September, 1977.

The data in Table 13 indicates that an additional 344 permanent resident housing units and an additional 1,076 transient labor housing units will be required to meet housing needs in 1982 projected under the 1982 low population-economic growth scenario. A total of 761 permanent resident housing units and an additional 2,206 transient labor housing units (in excess of the units currently (1977) available) would be required in 1987 under the low population-economic growth scenario. These are significant housing demands. However, the data in Table 13 should be carefully studied along with the population-economic growth scenario assumptions.

It should be noted that while the demand for permanent resident housing units continuously increases under the three scenarios, the number of transient labor housing units fluctuates depending on the assumptions in the particular scenario. This results from the differing assumptions relative to that proportion of the labor force which will remain transient and that which will become resident.

It is assumed that transient labor housing demands will be adequately met by the seafood processing companies. Permanent resident housing demands, however, will have to be met by the private sector, or by action of a governmentally organized public housing group. The Aleutian-Pribilof Housing Authority, a non-profit corporation under the Aleutian/Probilof Islands Association, Inc. is one such group attempting to foster development of additional housing in Unalaska. Working jointly with the Ounalashka Corporation and the City Council, the Housing Authority is attempting to institute a housing construction program in Unalaska primarily to serve low and moderate income families. The Alaska State Housing Authority (ASHA), while it has no current housing program in Unalaska, is the one state agency with the program capability to assist in meeting housing demands. Efforts should be made to engage ASHA in a housing program in Unalaska.

Several recommendations and actions seem appropriate with respect to housing problems in Unalaska. It is recommended that the City Council adopt these policy statements and take appropriate actions to implement them.

Recommendations:

1. *Efforts shall be initiated to secure a branch bank located in Unalaska.*
2. *Investigation should be initiated to determine how construction materials could be purchased in bulk quantities, thus realizing some savings over current purchase costs.*
3. *The City should assure that none of its present code or land use regulations and that any adopted in the future pose any unnecessary obstacles to housing construction beyond those needed to assure compliance with normal safety and sanitary requirements.*
4. *The City should continue its current co-operative efforts with the Ounalashka Corporation and the Aleutian-Pribilof Housing Authority to develop additional housing in the community.*

5. *The Ounalshka Corporation should be encouraged to continue, and to accelerate if possible as appropriate, its current program of upgrading abandoned military housing on Amaknak Island.*
6. *The City should initiate contact with the Alaska State Housing Authority to determine the extent of assistance that agency could provide in meeting current as well as projected housing needs.*
7. *If new housing programs are initiated, the City should consider hiring a housing coordinator at least on a parttime basis; but full time if the work program permits. Funding for such a position is possibly available from one or more State or Federal programs for such an effort. Possibly the position could be accomplished by contractual agreement with the Aleutian-Probilof Housing Authority and/or the Ounalashka Corporation.*
8. *The City should adopt policy which requires housing needs for transient labor forces, be they seafcod processors or CCS industry related or others, to be met by the industry with no inordinate burden on local population or City funds.*
9. *The City should annually analyze population fluctuations and update future projections of housing needs to assure that any housing program it establishes is adequately supplied with current data and thus able to design future program activities around actual demands and attainable goals.*
10. *The City should investigate ways to give short term property tax incentives to local residents who make improvements and repairs to their residences.*

E. COMMUNITY FACILITIES PLAN

A Community Facilities Plan element of the Community Development Plan depicts those public facilities which will be needed to serve the population in future years. It must take into account the educational, public safety, utility, recreational and similar needs of the community as well as the land requirements necessary to fulfill those needs. The plan must be based in part upon the present capabilities and existing facilities in each of the areas of concern. It must be based upon the projected future population and demands that population will create and upon the capability of the local community to finance public improvements.

The Community Facilities Plan Element contains a brief inventory of existing facilities, an analysis of future needs and the Facilities Plan itself. In addition, the Facilities Plan is included on the Land Use Plan Map, Figure 14. Each major community facility is discussed separately below.

1. SANITARY SEWER.

a. Present Facilities. The City's current methods of sewage disposal are varied. Where a building has access to existing sewer lines installed by the military, that building is usually connected to that line. An outfall line empties into Iliuliuk Bay at the upper end of the spit, discharging sewage collected from a small number of residences up Unalaska Creek Valley. A second outfall line discharges into the Bay near the Standard Oil dock. Sewage from the "officers quarters" housing area on Amaknak Island flows into this outfall line. Domestic wastes from the cannery facilities on Amaknak are treated in individual package treatment plants and the effluent discharged into the harbor. Domestic wastes from the spit area on Unalaska Island, where most of the permanent resident population is located is handled in individual septic tank systems. Seafood processing wastes are ground by the individual processors and pumped across Amaknak Island to outfall lines extending into Unalaska Bay. Individual septic tank disposal systems and package treatment plant systems take care of wastes at residential and processing sites remote from the central area of the community. Generally, the present systems of sewage disposal are adequate for present needs except for those instances when raw sewage is being discharged into receiving waters. There is evidence of low dissolved oxygen content in the waters of the harbor area, caused by sewage entering the harbor. Occasional failures in sewage handling systems have occurred in the recent past, attributable primarily to overloading or mechanical failure.

b. Future Needs and Plans. The City is currently engaged in preparation of a long range sanitary sewer collection and treatment plan. It will take into consideration the need to handle domestic waste. The study is being accomplished with state and federal grant funds. It has been concluded, based upon projected population increases and projected increases in seafood processing activity coupled with the generally poor soil and shallow bedrock conditions throughout the community and the necessity to protect the present high quality of the waters in Unalaska, that a community wide sewage collection system and treatment facility is required to adequately meet the needs of the community and comply with federal and state anti-pollution laws. The plan of study for the project has been completed and the "Step 1"

phase of the study is underway and expected to be completed by the end of calendar year 1977. The "Step 2" phase, design of the collection and treatment facilities, will begin when "Step 1" is accomplished. It will require approximately six (6) months to complete. It is possible that construction of facilities could begin by the end of calendar year 1978. The earliest likely date for completion of the project is mid-1980.

It appears that certain of the sanitary sewer lines in the existing collection and transmission system could be utilized after rehabilitation; some new lines will have to be installed, and a treatment plant will be required. Neither the exact method of treatment nor the design capacity of the treatment plant has been determined at this time. The site for the treatment plant has been tentatively chosen based upon the optimum location for the outfall line and proximity to users. That location, near Arch Rock on Amaknak Island, is shown on the Community Facilities Plan map. The facility is intended to handle all domestic wastes generated in the community including those generated by the cannery operations. It will not treat seafood processing wastes. Processing wastes can best be handled by progressively instituting more thorough treatment procedures such as finer grinding, screening at a later date, and possibly dissolved air floatation separation still farther in the future. Consideration is being given to reclaiming the wastes from the seafood processing operations for use as animal feed or fertilizer such as is being done in the cities of Seward and Kodiak.

The City of Unalaska is proceeding with all possible speed to solve current and future problems associated with sanitary sewage in the community. Barring unforeseen events, a community-wide sanitary sewer system will be operable by 1980. The economic, population and land use forecasts in this Plan will provide valuable input to the sewer planning project.

2. WATER SUPPLY AND DISTRIBUTION

a. Present Facilities. The City is currently (1977) in the final stages of completing partial renovation of the community-wide water system. Utilizing rehabilitated portions of the existing military water system coupled with certain new facilities constructed as part of the project, the system is now operational and present water needs of the community and the seafood processing industry are being met. Two primary sources of supply are being utilized. An existing dam on Unalaska Creek has been rehabilitated. A new dam on Pyramid Creek has been constructed. Both dams create small lakes which are not actually water reservoirs in that they

do not create large impoundments but they do provide an intake source for the transmission lines that feed from the sites. Both creeks are in very narrow and steep valleys at the site of the dams and are unsuitable for constructing water storage reservoirs. Constructing reservoirs is much less economically desirable than relying on deep wells to supplement supply during periods of low flow on the creeks. In both cases, existing transmission lines to the community have been rehabilitated, and new water treatment and filtration systems including screening to removing floating organic matter along with chlorination have been installed. The transmission lines consist of 14,000 feet of 12-inch wood stave pipe and 2,400 feet of new 12-inch ductile iron pipe to the Unalaska Creek dam, and 18,500 feet of 16-inch wood stave pipe and 3,000 feet of new 12-inch ductile iron pipe to the Pyramid Creek dam. New transmission lines under the east channel of Iliuliuk Bay have been installed linking the distribution system on Amaknak Island with the two supply sources on Unalaska Island. Two standby wells capable of supplying 1,200 GPM as emergency supplemental supply for periods of low flow on the Creeks have also been installed. Fire hydrants have been installed and some of the existing distribution lines on Amaknak Island have been rehabilitated. All water users are now being metered. The system is capable of supplying 7,500 GPM on a continuous basis with the wells supplementing this during low flow periods.

b. Future Needs and Plans. It is assumed that water demands will increase in Unalaska. Given a possible three-fold increase in population and a doubling of seafood processing volume it is likely that water demands will likewise increase. The demand will probably not increase in direct proportion to increases in population and processing volume as metering of water consumption and possible reuse of water in processing can serve to lessen the rate of increase in consumption. The City will, however, have to regularly monitor consumption and demand with regular projections being necessary to assure keeping ahead of the situation.

With respect to additional sources of supply, both Unalaska Creek and Pyramid Creek have additional supply producing capability. Exact study has not been performed to determine the maximum quantities that could be supplied from these two sources, however, it is known that the limiting factor in the current water distribution system is capacity in the existing transmission lines, not inadequacies in supply. Only a fraction of the total flow in the two creeks is diverted to the supply lines. The rest flows over the dams into the creeks and out to sea. Larger and/or additional pipes could be installed to intercept and transmit more water to the distribution system. Additionally, tributaries exist on both creeks which could be used for development of additional supply. Unalaska Lake could also be developed as

a water reservoir as well. This would require a higher level of treatment than is the case on the two streams; however, possible future use of the lake should not be overlooked and the present high quality of the water in the lake should be protected by prohibiting septic tank effluent discharge, excessive urban runoff and siltation of the lake. Significant additional supplies of water could probably be obtained from wells in the Unalaska Creek floodplain area. This possibility should be evaluated by test pumping from this area. Use of the abandoned military water reservoir on Amaknak Island as a source of water is not contemplated except for fire fighting emergency situations. Treatment and filtration costs using this facility greatly exceed use of ground water as presently is being done.

Probably the most vexing problem with respect to water supply is that faced during the few days annually when cold weather results in low flow periods on the two streams and supply falls below the demand generated by seafood processing activities. These periods, are to a great degree, predictable and the processors have time to take action to reduce processing volume. It is during these periods when the two wells are relied on to meet at least part of the demand. The system is new and the winter of 1977-78 will be the first year it is in use. This situation should be addressed at an early date and a solution implemented. Possible solutions that should be investigated include re-evaluation of the City's water rate structure and initiation of water conservation measures in the seafood processing facilities. Finally, detailed study should be performed to determine long range water demands for the community considering the range of population and economic projections developed in this plan. The solutions should then be included in the community's Capital Improvements Program in a manner timely to meet future demands.

3. ELECTRICAL POWER

a. Present Facilities. Electricity is supplied in the community from two primary sources - the City-owned electric utility which supplies power to all residential and commercial customers on Unalaska Island, and numerous individual electric generators at each of the canneries and other installations on Amaknak Island supplying their own specific needs. There is no central generation or distribution system operable on Amaknak Island, only on the Unalaska Island portion of the community. The City-owned electric utility has two (2) 300KW diesel electric generators. A distribution system, limited to the Unalaska side as stated, is composed of distribution lines most of which are of World War II vintage. Additional emergency standby power generation capability of 125KW is available in the Unalaska Creek valley area. The two primary generators are each capable of

producing 300KW of power but cannot be run simultaneously for any period of time because the units have not been synchronized.

An abandoned power generation plant is located on Amaknak Island south of the airport. The facility was constructed by the military and, while not presently operable, is reportedly in generally good condition with only minimal rehabilitation being required to make it operable. The generating capacity of this facility is unknown.

Current average power demand is between 170 and 180KW with peak demands reaching 280KW. It is possible to isolate some segments of the system in time of emergency and feed power to segments of the system alternately in the event generation capacity were to be reduced for some reason, but this is considered an extremely undesirable means of handling emergency situations or peak demands in excess of installed capacity.

b. Future Needs and Plans. An engineering study should be made to determine:

(1) Engineering feasibility of extending the City electric utility distribution system to service all of the City service area (corporate limits).

(2) Total current system demand and projected demand five and ten years hence for both the existing City system on Unalaska Island and the total City service area including Amaknak Island; and recommend the generating equipment most economical to meet the demand.

(3) Required distribution system improvements for both the existing system operated by the City electric utility and distribution system extensions to the entire City service area.

(4) Analysis of existing generating equipment (both City and privately owned) that can be feasibly utilized in providing the most economic electric service to the entire City service area.

(5) Estimated cost of improvements recommended in (1) through (4) above, including the estimated value of privately owned generating and distribution facilities than can be feasibly incorporated in the overall plan, including standby or emergency generating capacity.

(6) Financial feasibility of recommendations (1) through (4) above through the issuance of electric revenue bonds or other methods of funding.

(7) Recommendations for interim improvements (and their estimated costs) to the existing City generating and distribution system should be made as an earlier and separate section of the report.

Inasmuch as individual fish processing companies may have to add generating capacity in the near future to meet increased electric power demands, this study should be completed as soon as possible.

In developing a new long range plan for upgrading the electrical system, the City should give serious consideration to relocating the City's power generation facility from its present location adjacent to the school. While this location is central in the community, it is nonetheless presently in a very undesirable location and will be even more so if recommended plans are carried forth to develop the City government center and community center complex in this location. If the abandoned power plant on Amaknak Island is capable of being rehabilitated and depending on its power generation capacity, that facility could conceivably become the central power generating facility. The bridge crossing between Unalaska and Amaknak, now in design stage, should be designed so as to be capable of carrying electric transmission and distribution lines.

4. COMMUNICATION FACILITIES

a. Present Facilities. Both local and long lines communications are available in Unalaska. Local service is operated by Interior Telephone Co., while long line telephone services are provided by RCA Alaska Communications, Inc. Local service is available throughout the community although the number of services is limited by capacity of existing switching equipment. The system has recently undergone upgrading with further improvements scheduled. Initially at the time of the last round of improvements, a total of 30 some requests for service were on record. Before installation of the new equipment was completed, over 100 requests for service in the community had been received. The present demand for services totals approximately 200. New local switching equipment is being installed by Interior Telephone and touch tone dialing will be available on the system by year end (1977).

RCA long line communications are handled by a recently installed micro-wave repeater system. Twelve (12) long line circuits reportedly are presently available.

Both systems reportedly work reasonably well although there are instances of failure and interruption to service. The long line system is occasionally plagued by a repeating echo in the voice transmission and a split-second delay due to the distances involved in communication with Anchorage. Complaints about the efficiency of the systems are voiced frequently in the community and to the extent these complaints are justified, they are attributed to problems reportedly common to modification periods such as the system is currently going through.

b. Future Needs and Plans. Both Interior and RCA report that they intend to continue upgrading their respective systems and facilities and the interties between the two. Neither report any anticipated problems in meeting future demands for service. It is therefore assumed that adequate service will be provided as demands require and if this is not the case, both utilities, being regulated by the Alaska Public Utilities Commission, would be compelled to do so as condition of their certification by the Commission.

One aspect of the City's communication facilities system merits consideration and possible action. The microwave receiving and transmission facilities for long lines communication have been located on the spit in the central part of the community's present and future core area. The two reflecting "dishes" are located here. While they are admittedly essential components of the communications system, they are poorly located from an aesthetic and visual point of view. It is possible that the present location is the only technically feasible location for such an installation. If that is the case, then they obviously must remain. However, the City should seek the cooperation of RCA Alaska Communications in determining if an alternate location would be feasible within reasonable cost and if so relocate the reflector dishes. In the present location, they will in time become impediments to expansion and development in the central area, and aside from their being somewhat incompatible aesthetically, they will be more incompatible from a land use point of view as well.

5. EDUCATIONAL FACILITIES.

a. Present Facilities. The single school facility presently at Unalaska provides primary and secondary education for approximately 130 students (1977). All students live in the community, within the City limits. The City of Unalaska, as a First Class City in the Unorganized Borough, constitutes one of the 31 city and borough school districts in the state. The City has, for some years, made a sizable financial contribution from tax monies towards support of the educational program. This has, in part, led to development of an excellent

educational program. During the off-season period for the seafood processing industry, school enrollment drops to about 115 students, an indication of the comparatively few families in the transient labor force of the seafood processing industry.

Enrollment trends have, according to the School Superintendent, exhibited an average six percent (6%) per year growth. Discussions with school administrative personnel indicate that the school could absorb a 25 to 30 percent increase in enrollment before the physical size of the facility would require expansion. If the current trend continues, adequate school facilities exist until about 1981. Currently, 14 professional teaching personnel are employed, giving a pupil-to-teacher ratio (PTR) of less than 10 to 1, one of the lowest such ratios in Alaska today.

There is an extreme degree of pride among local residents in the school, as expressed to the project consultant, and the high quality of the education being delivered is a repeated observation. Facilities in the school include 15 classrooms of varying size, design, intended function and use; a gymnasium and multi-purpose recreation room; library; vocational shop; small kitchen and other modern educational facilities including a student operated television station presenting packaged video tape programming and facilities for live television broadcasting. The band room is located in an adjacent building. The physical education program at the school includes a basketball team; however, inter-school competition is severely limited by minimal travel funds and the long travel distances that are involved. A school lunch program is operated for approximately 60-70 students presently.

Community off-hour use of the school facility includes public library, gymnasium, television station operation and group meetings. Partitions between classrooms can be opened, allowing public meetings to accomodate a hundred persons or more.

A small number of adult education classes are held occasionally in the school to provide training in welding, mechanics and similar trades. Vocational classes for students include carpentry, building trades and fisheries (boat operation and repair). Land area adjacent to the school building and part of the site itself is used for outdoor play and physical education activities. Almost no improvements nor equipment is located on the site, however.

b. Future Needs and Plans. The same difficulties inherent in forecasting population and housing demands in Unalaska exist when projecting school enrollment. The

number of variables and unknown factors relative to future labor force and resident-nonresident composition of the population influence the projection greatly.

School staff personnel indicated in discussion with the project consultant that they felt school enrollment would increase significantly if adequate housing and related facilities become available in the community, allowing many of the fishermen to settle in the community and bring their families with them. With more available housing, the seasonality of the enrollment would likely decrease, they indicated.

In forecasting school enrollment from the population projections indicated in Table 6, a basic assumption must be made. That assumption is that the proportion of school children in the total residential population will remain the same. In 1976 school children constituted about 24 percent of the total Unalaska residential population, and on a statewide basis, school children constituted 22 percent of the total Alaska residential population. It seems a reasonable assumption, therefore, that the 24 percent current Unalaska proportion will continue over the next decade.

Table 14 below indicates average elementary, secondary and total school enrollment in the Unalaska school for the years 1970 through 1977.

TABLE 14
UNALASKA SCHOOL ENROLLMENT
1970-1977

Year	Number of Pupils		
	Grades K-6	Grades 7-12	Total
1970	52	28	80
1971	70	42	112
1972	70	49	119
1973	64	49	113
1974	52	51	103
1975	53	64	117
1976	56	66	122
1977	62	61	123

Source: School staff, Unalaska, Alaska, 1977.

Using this data, combined with the population-economic scenario projections discussed earlier, the following school enrollment projections have been developed.

TABLE 15
PROJECTED AVERAGE SCHOOL ENROLLMENT
CITY OF UNALASKA
1982 and 1987

	PROJECTED ENROLLMENT					
	1982			1987		
	Low	Mod- erate	High	Low	Mod- erate	High
Residential Population	1,329	2,961	6,357	2,322	5,703	13,443
Non-Residential Population	1,657	1,288	1,425	2,507	1,774	2,082
Total Population	2,986	4,249	7,782	4,829	7,477	15,525
Pupils, Grades K-6	160	356	763	279	685	1,613
Pupils, Grades 7-12	159	355	763	278	684	1,613
Total Pupils	319	711	1,526	557	1,369	3,226

Source: Tryck, Nyman & Hayes, September, 1977.

Table 15 illustrates the projected school enrollment for the years 1982 and 1987 based upon the economic and population scenarios discussed previously. It must be noted that these projections are based upon sets of specific assumptions, and that the projected enrollments will be achieved in direct relation to the degree of accuracy of the assumptions. If a set of conditions relative to economic development other than any of those utilized in the scenarios occurs, then population will be accordingly different and this difference will be reflected in actual school enrollment. It is therefore imperative that school enrollment trends, as one indicator, and economic developments, as a second, be monitored regularly to detect added demands upon school facilities sufficiently in advance of the demands actually occurring to enable new construction to be initiated in a timely manner.

Certain policy decisions should be made in the community about educational facilities. The most basic of these decisions is whether or not the current pupil-teacher ratio (PTR) of 10 to 1 is going to be maintained or whether, as enrollment increases, it will be allowed to increase. This is a matter for decision by the School Board and the community. That decision, however, will greatly affect the need for expanded school facilities and the cost of providing those facilities.

One and possibly two (2) additional school facilities will likely be needed in Unalaska within the time frame of this Plan. One school should be located on Amaknak Island central to the area where family residential development will occur. The second should be located up the Unalaska Creek Road near the intersection with Ugadaga Road. Specific site selection studies should be initiated at some point to ascertain the best specific location and configuration of each building site based upon topography, access, etc. The two sites should be central to their probable future attendance areas and deviation from this primary criteria for location should not be great. With respect to the site located in Unalaska Creek Valley, it should be noted that a specific site location has not been shown on the Community facilities plan although as stated above, the site probably should be located near the intersection of the Unalaska Creek Road and Ugadaga Road. It is recommended that the School Board initiate a site selection study to identify one or more alternative sites in the valley and once this is accomplished move to acquire a site for future use. This process should be initiated sufficiently far enough in advance of actual need for the facility to permit timely planning, acquisition and design processes to occur.

The recommended site for a school on Amaknak Island has been shown on the Community Facilities plan. Selecting this site is far less complicated than in the case of the site in Unalaska Creek Valley and the recommended location is central to the family residential area on the Island.

Whether the two future schools are developed as full K-12 facilities or some division is arrived at where, for example, two of the facilities are K-8 and one is 9-12 grades, is a decision, again, the School Board and the community should make.

Finally, consideration is currently being given to developing a swimming pool on a portion of the existing school site. A team of engineering and architectural specialists are presently working on feasibility determination and cost analysis. The facility would serve both school and community purposes. This effort should be carried through as there

was considerable desire expressed to the project consultant by residents for a public swimming pool facility in the community. During this project investigation, consideration should also be given to making at least one alteration to the site of the current school. A platted but undeveloped road right-of-way separates the existing school building from the play area. This right-of-way should be vacated as there is no future need for the road in this location. Easements for existing public utilities will have to be provided but the right-of-way can be vacated with no detriment to the community street network.

6. PUBLIC SAFETY FACILITIES

a. Present Facilities. Law enforcement and fire protection services are currently provided by the City. One fire station with apparatus is located on Unalaska Island, similarly one on Amaknak Island. Additionally, the state operated Magistrate's Court is located on the Unalaska side along with temporary detention facilities. Five paid City police officers make up the compliment of the Police Department. The City does not maintain a paid fire department. There is a volunteer fire department with the City contributing financial support towards the group's operations and equipment. The volunteer group is extremely efficient and effective. Because there is no paid full time department and until recently a service deficiency in fire hydrants and water supply, the City is classified a Class Ten area for fire insurance purposes. Whether this rating will change or not based upon recent improvements to the water system is unknown. Substantial improvement in the City's fire insurance rating probably cannot be achieved until some degree of paid full-time fire department is organized and funded via the city budget. It is recommended, however, that the City contact the Pacific regional office of the Insurance Services Office, which is the organization responsible for establishing municipal fire insurance classifications, and seek a complete review of the City's rating. Part of such a review would include reporting as to improvements needed to upgrade the current Class Ten rating.

b. Future Needs and Plans. Two sites have been located on the Community Facilities Plan for use in developing future public safety facilities. On the Unalaska Island side a site in the civic center-government complex has been designated for housing a central fire station, Police Department headquarters, Magistrate's Court facilities and a temporary detention facility. Design of the facility on this site would allow for twenty-four hour manning of the station. The site is at the present location of the fire station on Unalaska Island. This location is central to the Unalaska Island portion of the community for fire response time and

at the intersection of the major roads leading in all directions. It is sufficiently removed from the intersection, however, so as to not be hampered by traffic crossing the intersection.

The site on Amaknak Island is intended for housing fire fighting apparatus and personnel. It is central to the Amaknak Island area and affords easily accessibility to all areas of the Island being located adjacent to major roads. This facility will have to be designed, when implemented, to accomodate any special fire fighting apparatus that might be needed for protection and fire-rescue operations at the canneries and the airport. The City should secure the assistance of professional expertise in siting and designing these facilities. Additionally, the City's requirements for manning and equipping both public safety functions should be determined with the assistance of individuals expert in these fields.

The abandoned military water reservoir on Amaknak Island should be considered for future use as an emergency fire fighting water source. In order to accomplish this, the reservoir would have to be connected to the distribution system on Amaknak Island. This may present special problems in that it might prove necessary to provide chlorination and filtration treatment of the water in order to hook it to the system. Nonetheless, this possibility should be investigated.

No attempt has been made in this plan to prescribe the number of police officers or fire fighting personnel for the City of Unalaska. Determining these standards is best done by individuals expert in the respective fields. Personnel levels for any given community will vary depending on a wide variety of factors including population and its composition, area served, terrain, crime statistics for the local community, presence of other support services and objectives of the specific community. A community with a high crime index or a high percentage of transient population will generally call for a higher number of law enforcement officers than one with a lower crime rate or a low percentage of transient population. An area with high value property to protect will require more fire fighters than will a community with comparatively less commercial or industrial property of high value. It is recommended that the City seek the assistance of the State Public Safety Department and the State Fire Marshal's office as well as private professional expertise in reviewing these areas and establishing minimum personnel levels.

It is reported that the State of Alaska is currently investigating the need for a criminal justice and detention facility at Unalaska. It is recommended that the City and State jointly consider locating this facility as noted above on the site of the recommended Public Safety complex. The City should contact the State Department of Transportation & Public Facilities, which is handling this project, at an early date to initiate discussions on this matter.

7. MEDICAL FACILITIES

a. Present Facilities. Medical and health services in Unalaska are presently provided through the Iliuliuk Family and Health Services Clinic, started in 1975. Facilities include complete x-ray, laboratory and two (2) patient overnight beds. A small apartment in the facility is available for use by visiting physicians. The facility was designed to serve a community population of 600 persons. No full-time doctor or dentist is available in Unalaska, but most less-than-serious diseases and injuries are treated by the two full-time physicians' assistants at the Clinic. Physician and dentist visits to the community are sporadic, and occur generally twice yearly. Any problems which are serious in nature require the sick or injured to be transported to Kodiak or Anchorage for treatment. If weather conditions preclude scheduled airline transport, the U.S. Coast Guard does provide emergency transport. In addition to the two physician's assistants, staff at the Clinic includes a registered nurse, director, bookkeeper and janitor. The Clinic is supported by fees paid by users of the Clinic, by some public tax monies and by monies paid by the canneries based upon the level of service and number of visits to the clinic by cannery employees.

b. Future Needs & Plans. The current facilities for medical and health care meet only the day-to-day demands of the Unalaska Community. There is need for a full-time resident physician in Unalaska. Communities of the size of Unalaska can support a full-time physician. Serious medical emergencies can be given attention presently but not the extensive care needed in many life-and-death situations. The infrequent visits by a physician and dentist to the community is a complaint voiced repeatedly to the project consultant by local residents and supported by City leaders. This situation could be alleviated were the City able to attract a full-time physician to the community. Certain requirements, like possibly housing and income supplement, might be necessary. It is recommended that the City Council seek input from community residents on the question of whether the City should expend local tax revenues for this purpose, and, assuming affirmative results, undertake efforts to secure a full-time resident physician to function in the Clinic.

Secondly, consideration should be given to the future need for a small hospital facility to serve the community. Cities of the size of Unalaska do support small 6-15 bed hospitals with at least minimal emergency, operative and long term care and recuperative facilities. Unquestionably, as population increases in the community, there will be an increasing requirement for and expanded capability to support such a facility. Additionally, consideration should be given to whether an emergency medical facility and hospital located in Unalaska could provide services to all or some part of the total Aleutian region. With the prospects of becoming the largest populated city in the Aleutians, Unalaska could well be the ideal location for such a facility. Were this the case, the service area of the hospital would be much larger than just the City of Unalaska, and local residents would receive significant benefit from the larger and more sophisticated facility that would thus be available.

A possible site for new hospital facilities in the community has been shown on the Community Facility Plan, adjacent to the present school site on land currently owned by the City. It is recommended that the City, jointly with the Clinic, seek the assistance of the State Department of Health & Social Services and of South Central Alaska Health Planning and Development Inc., in addressing this question. This non-profit agency is responsible for planning health systems in the Aleutian region. Plans prepared by this agency are submitted to the Alaska State Health Coordinating Committee for approval and then the Statewide plan incorporating plans for health facilities from all regions of the State is submitted to the U.S. Department of Health, Education and Welfare for approval. Separate from the health system plan, the Statewide agency develops the medical facilities construction plan. State legislation, Ch. 275 SLA 1976, establishes the requirement for "Certification of Need" before a hospital facility can be constructed. This legislation should be reviewed for specific regulations and criteria for use in pursuing this matter.

State Revenue Sharing funds for communities which support hospital services and facilities are available to supplement the operating costs of hospital facilities. These funds, while not large in quantity and certainly not sufficient to maintain a full fledged hospital facility, could be of some assistance in meeting this need.

8. RECREATIONAL FACILITIES

a. Present Facilities. Recreational facilities and outdoor recreation opportunities in particular, are restricted somewhat in Unalaska by the frequency of inclement weather. Facilities and organized programs receive high

usage by local residents and a recreation center is operated by the City. It is located in the Recreation Center building across the street from the school. Facilities and programs for both juveniles and adults are operated. Indoor games, television and reading areas are provided. Some recreation functions are held in the school also. Additionally, the Unisea Inn on Amaknak Island has a small game room and a gymnasium within the Inn. These facilities are used extensively by employees in the seafood processors.

Individual recreational opportunities in the community are afforded for boating and fishing outings, and many people in the community have recreational watercraft. There are no fully developed neighborhood park or outdoor recreation facilities in the community although a number of potentially high quality sites exist which could be developed for park and outdoor use with very little cost to the community. Sightseeing and exploring of the almost unlimited World War II military ruins is a favorite recreational venture for visitors to the community. Most recreational needs of the local residents are met, however, on a personal and individual basis as the beauty of the natural environment is captivating and provides individual recreational - hiking, picture taking, etc. - pursuits.

b. Future Needs & Plans. A number of areas have been designated on the Community Facilities Plan and the Land Use Plan for future park and recreation facility use. These are discussed below.

The prospects of a swimming pool for community and school use has been discussed. If this proposal is implemented, a significant contribution will have been made towards meeting a specific recreational desire in the community. A swimming pool would represent the major recreation facility in Unalaska and doubtlessly would receive heavy use. It is recommended that the City cooperate in any way possible with the school district in implementing this recommendation.

One major land area recommended for park and open space development is the possible floodplain area on Unalaska Creek. This area could be developed with an extremely wide variety of uses and facilities. The greenbelt area recommended around Unalaska Lake is intended to remain in open space with no buildings or facilities, except a walking and bicycle trail. The lake is a definite aesthetic asset to the community. The preservation of open space surrounding the lake will guarantee perpetual use of the lake and the immediate area surrounding it for all people's use and enjoyment. To the extent that private lands are encompassed within the greenbelt, the City should move to acquire those areas in the near future.

An open space area on land that is generally undevelopable surrounding the small lake (former water reservoir) at the south end of Haystack Hill is recommended. This area is owned by the City presently. Some active recreation use could be made of this area in conjunction with the lake.

The presently inoperable ski tow in Pyramid Creek Valley should be considered for rehabilitation. Although this area has not been shown on the Land Use Plan or the Community Facilities Plan Map, use of the area for this purpose should be considered.

Several areas on Amaknak Island have been recommended for park and open space use. Some of the areas are included in the Ounalashka Corporation's land selection and title to the properties will accrue to the Corporation. However, and in the specific case of the southern tip of Little South America, no development can take place without prior approval of the Federal Fish & Wildlife Service since the area was originally part of the Aleutian Island Wildlife Refuge System and it was made available for selection by the Corporation subject to this condition. This area is recommended for preservation in its present natural state as open space.

The entire northwesterly shoreline of Amaknak Island from the airport south to the western tip of Little South America is recommended for designation as open space since it is essentially undevelopable because of steep bluffs (in some locations) and areas of extreme tidal and wind erosion (in other locations). It would be unwise to permit development any closer than 100 to 150 feet from the high tide line as erosion of the beach line in this area would pose significant threat to any development in this location. Each segment of this shoreline should be evaluated individually, before any development in proximity thereto is permitted, to determine the specific minimum setback from the sea that should be adhered to.

A park or open space area surrounding the water reservoir on Amaknak Island has been recommended. While this reservoir is intended to serve only as an emergency fire fighting water supply and thus maintenance of the water quality at drinking water standards is not required, an area surrounding the body of water could ideally be developed for active recreational uses.

An open space and park area has been recommended on the hill south of the airport. The topography on the hill is such that its development for building is questionable at best. It could be readily developed for some recreational activity, or simply left as open space.

The southerly one-third of the spit in Dutch Harbor should be considered for maintaining in open space. It is not specifically designated on the Land Use Plan or the Community Facility Plan as Park or Open Space. However, it is thought that this portion of the Spit is somewhat more sensitive to development than the rest of the spit. This should be determined. If this is not the case, then the decision should be made as to whether to permit construction of dock facilities and extension of floating seafood processing ships into the area. Should study indicate that no structures or dock facilities should be permitted, then the area could be classified for permanent open space.

Finally, two sites, one on Unalaska Island and one on Amaknak Island have been recommended for development of community centers. Indoor recreation facilities, a library and related facilities should be the prime focus of each of these facilities. Both juvenile and adult needs should be met in the design of these centers. The one on Unalaska Island is a part of the government services-civic complex and should incorporate the present recreation center facility until such time as it is determined appropriate to replace the existing facility. The community center on Amaknak Island should be programmed in time for construction when the population level on the Island warrants such a facility.

9. SANITARY LANDFILL DISPOSAL FACILITY

A. Present Facilities. Three refuse disposal sites are currently in use in the community. The primary one is located on a wave created beach area on the southeast shore of Iliuliuk Bay. A second site is located in a narrow canyon on Pyramid Creek slightly upstream from its outlet into Captain's Bay. A third site is located on the Unalaska Bay exposure side of Amaknak Island. None of the three sites were being operated in conformance with accepted sanitary landfill disposal criteria at the time of the community facilities inventory. Open dumping and fequent burning occurs and cover of refuse is done only infrequently at the site on Iliuliuk Bay. No cover appears to occur at all at the other two sites. The sites, besides being visual blights, are unsanitary and pose potential health hazards to the community. Collection of garbage and refuse in the community is provided by contract service with the City. Evidence is abundant that the collection service is not effective as garbage is found in locations throughout the community. Much of this situation is attributable to carelessness on the part of residents who do not carefully place their garbage in the provided containers and to ineffective maintenance by the City of the disposal sites because of recent and frequent equipment failures. Efforts in recent months by the City Public Works Department to improve maintenance at the disposal

sites has produced good results. These efforts should be continued and expanded as should attempts to improve regularity of collection.

b. Future Needs and Plans. Until the point in time when the bridge between Amaknak Island and Unalaska Island is completed it will be necessary to continue maintaining a disposal site on both islands. Once the bridge is completed and assuming contract collection services continue, it will only be necessary to operate one disposal site. The following actions are recommended.

The existing disposal site at Pyramid Creek should be immediately closed. The City should proceed to clean up the condition existing there now and restore the site to some degree of natural state. Necessary steps should be taken to prevent any future use of the site for refuse disposal.

The site on Amaknak Island should be cleaned up to the maximum extent possible. It is not possible to renovate the site for proper use as a sanitary landfill as it exists virtually on bedrock at the beach line and it is just not possible to develop a sanitary landfill at the site. Efforts should be undertaken to find a more suitable site on Amaknak Island for temporary use as a landfill until the bridge is installed. Once the bridge connection is in, this site or the alternate site on the Island if one is found, should be permanently closed to further disposal and it should be renovated to its natural state to the extent possible.

The disposal site on Iliuliuk Bay should be further upgraded. Steps should be taken to prevent any refuse from entering the waters of the Bay and cover material should be secured and stockpiled at the site. Regular trenching with cover of disposed refuse in the trenches should be instituted on whatever frequency is necessary to prevent blowing of papers, "dump picking" or scavaging, and to reduce the health hazard to the minimum level possible. Open burning should be prohibited and the prohibition should be rigidly enforced. Amendment of City ordinances may be necessary to give sufficient police powers to the City to effect this ban.

Finally, the City should initiate a study to locate a suitable sanitary landfill site on Unalaska Island as well as on Amaknak Island for possible future use. Determination of a suitable site or sites is beyond the scope of this study and there are sufficiently significant problems related to land availability, water pollution, soil conditions and availability of cover material unique to Unalaska to warrant

careful study by persons competent in the field before selection of a permanent site.

10. PUBLIC WORKS FACILITIES

a. Present Facilities. Public works facilities in Unalaska include two municipal garages, one located up Unalaska Valley on property owned by the City, and a second on Amaknak Island south of the airport in a building leased by the City. These facilities are used for equipment storage and maintenance functions, shop area, and serve as central public works facilities to serve the two respective areas.

City equipment for performing public works functions include over 13 pieces of heavy equipment such as road graders, loaders, snow blower, dozers, etc. Certain pieces of the equipment are relatively new, but many of the pieces are old (1950-55 vintage), and in generally marginal to poor condition. Frequent breakdowns are reported, something not necessarily uncommon in municipal public works equipment operations. However, a higher degree of regular maintenance could, in this case, serve to reduce the frequency of breakdown according to the D.P.W. Director. Lengthy time periods are generally experienced in securing delivery of repair parts and service by other than City D.P.W. personnel when such service is needed. This accentuates the seriousness of the problem and strengthens the case for more regular maintenance.

b. Future Needs and Plans. Two sites for D.P.W. facilities have been recommended on the Community Facilities Plan. The present site on Unalaska Road is recommended for retention. A new shop-garage facility will eventually be required at this location as the existing building is old and lacks sufficient space for expansion of functions. This facility should be developed as the central D.P.W. facility for the City and should house administrative offices for D.P.W. functions as well as the mechanical shop, repair and storage functions.

A second D.P.W. facility site is recommended on Amaknak Island, adjacent to the site recommended for the City-wide sanitary sewage treatment plant. This facility should be developed as a satellite facility, small in size and designed to house road maintenance, snow removal and similar equipment that would be used to service functions on Amaknak Island.

11. COMMUNITY CENTER COMPLEX

Presently, the City's governmental offices are located on Broadway Street, near the School and Community Center. While there are no other state and federal governmental offices in the

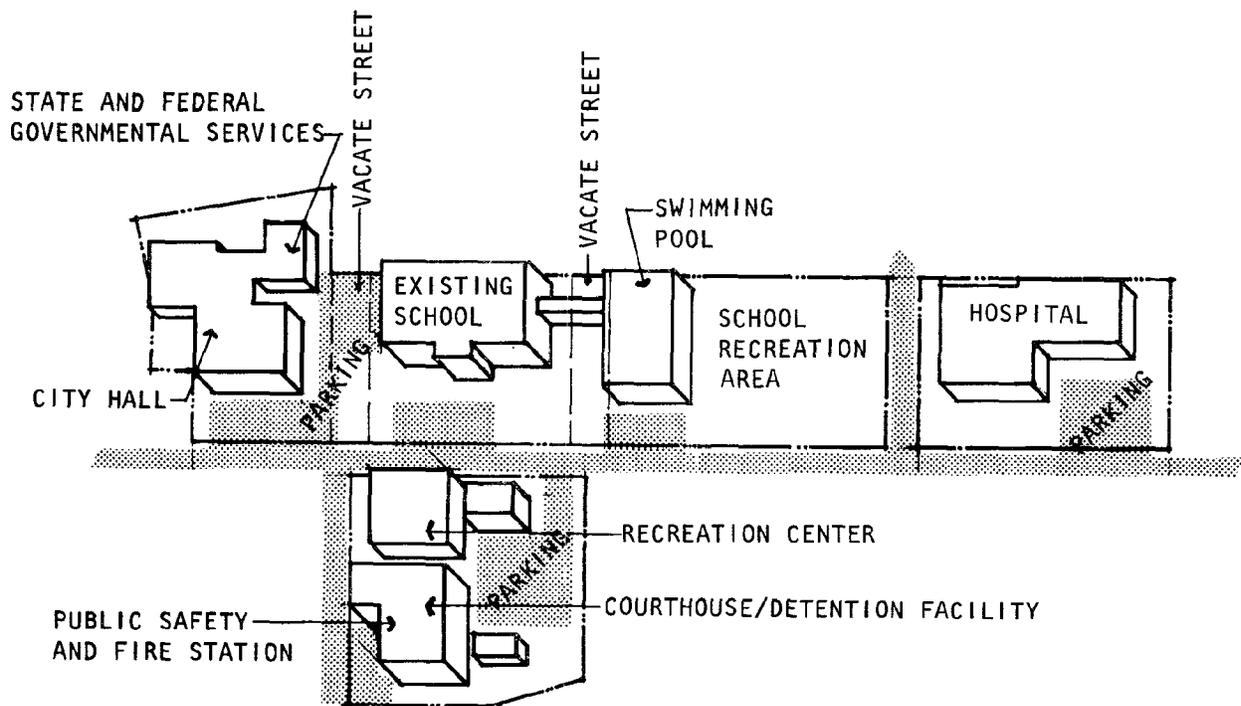


FIGURE 17
Recommended Development of Community Center Complex

community, indications are that several state and federal agencies would be desirous of occupying space in the community in future years. The State is considering development of new criminal justice facilities and the Department of Public Safety has indicated they are seeking office space for 200 mile enforcement activities. It is recommended that the City investigate the possibility of consolidating all governmental facilities and the school, recreational-community center facilities and other public uses in a single area. It is possible to utilize lands already owned by the public agencies, i.e., the City, School, etc, to develop this complex. Figure 17 illustrates a conceptual design layout for the various facilities that might be included in such a complex and suggests locations for the various uses. The City should commission a detailed investigation and preparation of a site development plan before undertaking development on any portion of the properties involved. This will assure an integrated plan and functional use of the sites when facilities are actually developed.

12. CEMETERY

a. Present Facilities. The current cemetery in Unalaska, near the south end of Iliuliuk Bay, is 1.91 acres in size. It has been in use since early Russian settlement in the community. It was surveyed in 1907 and reserved as a part of the Russian-Greek Mission, including the Church, pastor's house and other land. During World War II, the site was known as the Fort Mears Cemetery.

b. Future Needs. It may be advisable to enlarge the boundary of the cemetery area to about five acres to prevent development against the current site's boundaries. It is better to reserve additional area now, rather than find an additional site sometime in the future. The present site is adequate in size to handle expected needs in the immediate future.

F. TRANSPORTATION/CIRCULATION PLAN

The Transportation/Circulation Plan element of the Community Development Plan outlines the basic roadway network for the community and addresses those regional and statewide transportation systems which serve the community. This section of the report presents an inventory of existing transportation facilities and systems serving Unalaska as well as a local transportation/circulation plan for the community. It also addresses regional transportation issues.

1. INVENTORY. The local transportation systems in Unalaska consist of the City's basic road network and a

commercially operated ferry shuttle service. Many streets and roads exist in the City, a great number in fact for a community of the physical size and population of Unalaska. This situation results in great measure from the extensive military activity which occurred in the area and the numerous military installations which were located virtually throughout the Unalaska Bay area. Many of the former military-constructed roads are presently in poor condition due to lack of continuing maintenance coupled with the fact that many of them were, of necessity, constructed in locations susceptible to landslide and erosion. Roads around Captains Bay to Eider Point, on Ballyhoo Mountain, around the westerly side of Amaknak Island, along Iliuliuk Bay to Summer Bay and across the mountains through the pass to Summer Bay are examples of old military roadways which have become impassable.

All roads in the community are unpaved, being of gravel construction. Those older roadways in the community which have been regularly used and maintained have remained open. Most of the currently used roads on Amaknak Island fall into this category. There are generally two types of roads, from a functional point of view, in the community: local roads which provide access to individual properties; and what might be called, for lack of more suitable terminology, the major or primary roads. Figure 18 illustrates the existing road network in the City. The State secondary highway system in the City includes most of the major roads. It includes the main roadway, Broadway Street, through the spit area on Unalaska Island, out Unalaska Creek Road to the creek crossing; across the Iliuliuk River and around Haystack Hill to the site of the proposed bridge crossing. On Amaknak Island the State secondary system includes the roadway between the Amaknak side of the proposed bridge crossing around the harbor and Margaret Bay to the Airport. State roads in the City are maintained by the City on a cost reimbursable basis from the State of Alaska.

Numerous local streets have been platted but not constructed. On Amaknak Island, none of the roadways have ever been platted. These roadways exist on numerous maps, including old military charts, but plats showing the rights-of-way having been dedicated to public use apparently do not exist. It is also noted from comparison of plat maps for the Unalaska Island portion of the community with aerial photography of the same area that many existing roads are not located within the platted rights-of-way but are instead outside the rights-of-way. A few instances were observed where structures or mobile homes have been placed within or in close proximity to the platted right-of-way.

Traffic patterns in the community are such that two roadways receive the majority of traffic movement in the area. On the Unalaska Island side, Broadway Street and its

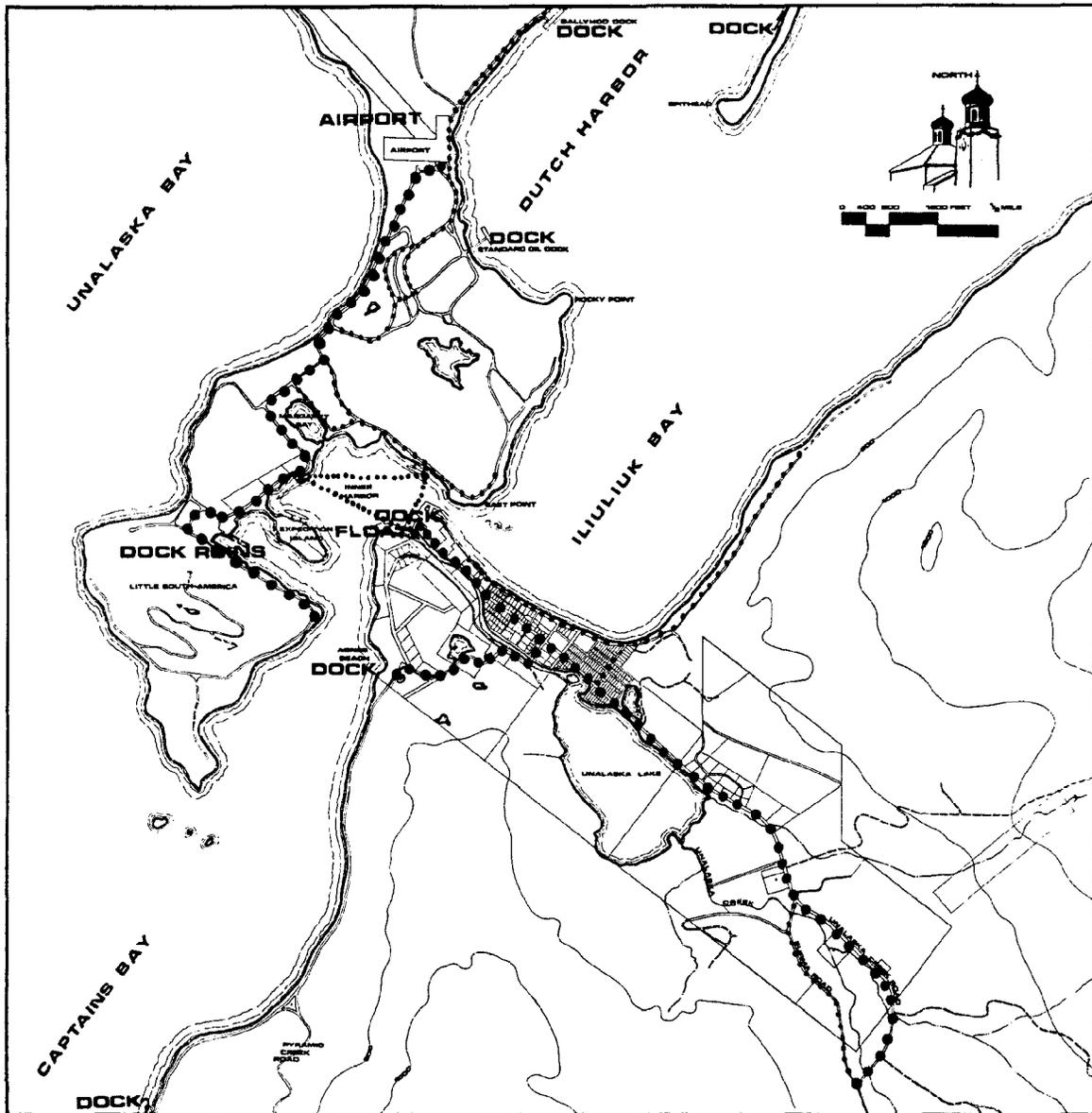


FIGURE 18
**EXISTING ROAD NETWORK AND
 TRANSPORTATION FACILITIES**

- ARTERIAL ROADS (STATE SECONDARY SYSTEM)
- COLLECTOR ROADS
- FERRY ROUTE

extension Unalaska Creek Road, receive much traffic use. On Amaknek Island most of the traffic uses the roadway circling Iliuliuk Harbor and connecting to the airport. This roadway traverses the developed seafood processing area and results in undesirable congestion as through traffic traverses the developed areas. The bridge crossing Iliuliuk River was damaged recently when a heavy vehicle broke through the deck. Repair of the bridge is scheduled and the crossing of Unalaska Creek up the valley will be renovated as well. An area of particular concern from the standpoint of vehicular traffic is the area at the south end of the airport. The existing roads are in extremely close proximity to existing buildings in several places and this, combined with several "blind" corners rounding hills, has made the area hazardous. Additionally, the roadway to the head of Dutch Harbor crosses the extreme south edge of the concrete aircraft taxiway-parking apron. This is an extremely hazardous condition although most local residents are aware of the situation and exercise caution when traversing the area.

Road maintenance is performed by the City Department of Public Works. The State road system as noted above, is also maintained by the City maintenance forces with reimbursement to the City from the State for this function. As all roads are unpaved, maintenance consists of continued grading, occasional placement of road gravel and snow plowing during winter months. Dust is a problem throughout the community during dry periods and despite the high frequency of rainfall, dry periods occur frequently as it takes very little time for the roadways to dry up.

The Islander Ferry is a commercially owned vessel operated in connection with the airport taxi service. The shuttle service operates between the dock at the mouth of the Iliuliuk River and the dock at the Vita Foods processing facility on Amaknak Island. It runs several times a day on a regular schedule between mid-morning and early evening. It operates on schedule to meet all Reeve Aleutian Airways arrivals and departures at the airport. School children on Amaknak Island are transported to Unalaska Island as well as on the return trip on the shuttle twice daily. This service provides the only regular means of access between the two islands except for use of private skiff.

With respect to regional transportation services, two such services exist in Unalaska. Reeve Aleutian Airways, an intrastate certificated airline, is presently the only commercial air carrier serving Unalaska with scheduled flights. No interstate air carrier serves the community. Flights are scheduled once daily between Anchorage and Unalaska with connecting service to Sand Point, Cold Bay, Shemya, Adak, and St. Paul Island. These flights carry primarily passengers

plus mail. High priority cargo is carried on a space available basis. Sealand Inc. provides containerized barge service between Anchorage and Unalaska and between Seattle and Unalaska. Cargo to Unalaska is general in nature including foodstuffs. Return cargo is almost totally freezer vans containing processed seafood products for distribution to outside Alaska markets. Frequency of service is tied directly to volume of product to be shipped out of Unalaska, but generally occurs on a 14-day cycle. Alaska Marine Shipping also calls at Unalaska every 8-10 days as does Pioneer Alaska Lines, the latter hauling mostly palletized and bulk cargo. Crawley Maritime provides contract shipping to Unalaska.

Regional transportation facilities in Unalaska also include the Dutch Harbor Airport, the dock at Captains Bay and the Standard Oil dock. The airport was originally constructed as a military facility to facilitate naval aircraft patrols and operation of fighter squadrons during World War II. It is presently classified as part of the State system of secondary airports. The airport runway is 4,300 feet long by 100 feet wide on the north 200 feet and 200 feet wide on the remainder. It is unpaved, except for a concrete apron area at the south end. The runway is oriented northwest-southeast with runway headings of 120 degrees and 300 degrees. Natural terrain along the northeasterly edge of the runway constitutes a noted obstruction. The runway is unlighted and unmarked and navigational aids are limited to an NDB (non-directional radio beacon) and DME (distance measuring equipment on Ballyhoo Mountain). All aircraft operations are conducted under visual flight rules (VFR). Communications are available with the FAA operator at Dutch Harbor which is operated by Reeve Aleutian Airways personnel from the terminal building.

Severe limitations exist on the type of aircraft that can use the facility due to the shortness of the runway and the absence of adequate navigation aids. Reeve Aleutian generally operates YS-11 aircraft (twin jet turbo-prop engines) into the facility. Larger aircraft do not normally operate in and out of the airport although local residents report that Reeve-owned Electra aircraft and the Coast Guard C-130 Hercules aircraft have on occasion in the past operated on the runway. Corporate class jet aircraft do use the facility as well. By in large, however, the shortness of the runway and the inadequate navigational aids and frequent poor weather conditions prevent improved frequency and quality of commercial air carrier service. Neither the Boeing 727 or 737 aircraft can use the airport. These two aircraft are the "backbone" of the Alaska intrastate commercial air carrier service system today.

Water transportation facilities for ocean going barges or ships are presently limited to the dock at Captains Bay and the Standard Oil dock. Other dock facilities in the community have

deteriorated to the point where they are practically unusable. The Captains Bay dock can tie up the larger vessels and barges which call at Unalaska. Any cargo to or from Unalaska Island must be moved across the Captains Bay dock as there is no way to transfer cargo between the two islands. There are indoor storage facilities for cargo at the Captains Bay dock. The Standard Oil dock is located south of the airport near Rocky Point. This facility handles primarily petroleum products but does handle some general cargo for the Amaknak Island portion of the Community as cargo of any bulk or weight landed on Unalaska Island cannot easily be transferred to Amaknak Island. The U.S. Coast Guard occasionally uses the Ballyhoo dock to load bouys; however, that facility is in extremely poor condition and not capable of handling any sizable cargo.

2. TRANSPORTATION/CIRCULATION PLAN

a. Regional. Regional and interregional air transportation is being restricted in Unalaska because of the limitations of the airport facility. The Alaska Division of Aviation reports that it has no plans to implement improvements to the facility during the next five years. The Federal Aviation Administration Alaska Region 10-Year Plan indicates that REIL lights (runway end identification lighting) and a VASI (visual approach slope indicator) are planned for installation at the facility sometime during the 1978-88 time frame. The report also indicates that the National Airport System Plan recommended improvements for the airport including paving, runway lighting, medium intensity runway edge lights, apron lighting, a new terminal building and a long list of ground improvements relative to maintenance, operations, etc.

The previous Community Development Plan for Unalaska recommended that a 6,000 foot long runway be located on the Dutch Harbor spit. To the knowledge of the project consultant, no engineering feasibility or cost analysis of that proposal was ever accomplished. No technical studies have been performed relative to the desirability or utility of the runway alignment that would result if a runway were constructed on the spit. The intent of upgrading airport facilities in Unalaska would be to provide for more frequent and safer air carrier service and to permit larger and heavier aircraft to serve the community. The spit, as discussed before, is thought to be a delicately balanced natural feature. The massive construction project that would be required to develop an airport facility on the spit could potentially pose a serious threat to the existence of the spit.

No practical location for development of a new airport is known to exist in Unalaska. The present runway was literally blasted out of the hillside of Ballyhoo Mountain.

In the absence of a more viable location, it appears that it will be necessary to upgrade the existing facility through extension of the runway as much as 2,700 feet total if a 6,000 foot runway is desired. Additionally, existing terrain may have to be modified to eliminate obstructions near the north end. The feasibility of this is unknown.

It is recommended that the City of Unalaska request the State Department of Transportation and Public Facilities, along with the Federal Aviation Administration, to initiate at the earliest possible time a review of possible alternatives for improving airport facilities at Unalaska. This request should be a priority item for the City. It is essential that the feasibility of airport upgrading be determined in order that alternatives to air transportation can be considered in the event that it will not be possible to upgrade the existing facility to a degree sufficient to permit operation of larger and heavier aircraft into Unalaska.

Additionally, it is recommended that the City of Unalaska initiate a request to the Alaska Transportation Commission to evaluate the present and future need for additional intrastate air carrier service to and from Unalaska. Air passenger traffic will likely increase with the probable increases in economic activity and population forecasted and demand for service should be met in a timely manner rather than waiting for demand to exceed the existing service level.

With respect to water transportation facilities in Unalaska the most significant improvement that could be made is the development of a general cargo dock facility capable of handling all forms of van shipment and bulk cargo. The City is presently proceeding with application for Phase I development to the U.S. Department of Commerce Economic Development Administration (EDA) for grant funds, as well as the State of Alaska for funds to construct such a facility. City of Unalaska funds will also be utilized in the project. Preliminary studies and design evaluations have been completed and if sufficient grant funds are obtained to supplement the City's funds, Phase I of a new general cargo dock facility will be constructed on the site of the abandoned Ballyhoo Dock in Dutch Harbor. Completion of this facility will provide capability to serve the entire community when the proposed bridge across the west channel is completed.

Additionally, it is recommended that the City initiate plans to develop a small boat basin at the head of Dutch Harbor. The site is considered ideal for location of such a facility as it is well protected from wind and wave action. The facility should be designed to accommodate small boats of the recreational and work boat or skiff type, the smaller

commercial fishing vessels as well as the new generation of commercial fishing vessels including those in the 150 foot class. It is believed that many of the larger fishing vessels operating in the Aleutian region would home port in Unalaska if there were adequate moorage and harbor facilities, which presently do not exist. The City should seek financial assistance from the State Division of Waters and Harbors in accomplishing this project. The City should also encourage the present owners to renovate the marine ways and develop a marine repair-service facility next to Expedition Island on the site of the former Navy submarine repair facility. Development of such repair and service capability in the community would also aid in attracting commercial fishing vessels to Unalaska.

With the construction of a small boat basin in Dutch Harbor, there will still be a need for transit type moorage on Unalaska Island. The facility should be capable of mooring four to six small boats for a limited period of time sufficient only to allow taking on supplies or passengers. This facility should be planned and constructed as a part of the small boat harbor basin project in Dutch Harbor. The best location for this moorage appears to be north of the causeway (on the Unalaska Island side) to be built in connection with the bridge crossing between Unalaska and Amaknak Islands.

The State of Alaska is currently conducting a regional transportation study of Southwest Alaska. Exactly what this study will show with respect to Unalaska is unknown. The focus of this study is primarily on the feasibility of a Southwest Alaska marine ferry system. The City of Unalaska should request the State to expand that study, or initiate a new study of multi-modal transportation needs and possibilities in Southwest Alaska. Of particular concern in such a study should be an evaluation of airport expansion needs and possibilities at Unalaska and what the alternatives with respect to regional transportation are if it is determined to be impossible or impractical to improve air service and airport facilities at Unalaska.

b. Local Circulation Plan. The recommended street and road plan for local circulation within the community is illustrated on the same map as the Land Use Plan and the Community Facilities Plan, Figure 14. The system includes two types of roadway facilities, Arterial and Collector. Local or neighborhood streets have not been shown on the plan. These street facilities are normally developed to compliment the Arterial and Collector roadway networks at the time neighborhoods are designed and developed.

The Arterial road system includes all of those road facilities which connect centers of activity in the community or which facilitate traffic movement from outlying areas

into the centers of activity. These roadways are normally those included on the State secondary road system in a community. While all of the roadways recommended for inclusion in this category may not presently qualify under Highway Department criteria for classification and inclusion on the State secondary road network, the eventual goal of the City should be to have each of these facilities included in the State's secondary system.

A total of approximately 11.56 miles of Arterial roadway are included in the plan, including 5.20 miles on Amaknak Island and 6.36 miles on Unalaska Island. These roadways should be constructed to standards incorporating 60 feet of right-of-way. In many cases, this right-of-way width will be neither possible nor practical, however, whenever possible this should be the design right-of-way. Where Arterial roadways traverse heavily developed areas, it should be the goal of the City to pave the roadways with at least two lanes of traffic plus allowance for parking where appropriate or addition of pedestrian walkways if desired and additional vehicle travel lanes if necessary in future years.

One major modification in the current Arterial road network is recommended. The main road traversing the developed seafood processing area along the edge of Iliuliuk Harbor should be reduced from its current Arterial status and use to that of Collector status and use (discussed below). This area is congested presently and an Arterial class roadway through this area carrying essentially through traffic is undesirable. The presently impassable roadway around the northwest side of the central part of Amaknak Island should be reopened, upgraded and classified as an Arterial road. This will provide an Arterial road link between the western terminus of the proposed bridge and the Arterial road northwest of Margaret Bay accessing to the airport, and redirect through traffic out of the congested area around Iliuliuk Harbor.

Another area of concern, as mentioned, is that around the present airport terminal and the southern end of the airport runway. No simple design solution to this problem is apparent. However, the City should engage the Highway Department and Division of Aviation in assisting with a design concept study of this problem.

Another area of concern is the intersection of the two Arterial roads north of the bridge crossing the Iliuliuk River where the government services and complex of community facilities will eventually develop. As traffic volumes increase, this intersection will become increasingly congested. There appears to be no alternative to intersecting these two Arterial roadways at this location given the fixed location

of the bridge across the Iliuliuk River and the conclusion that it is probably not possible to construct a road on the southwest side of Unalaska Lake to feed Amaknak bound traffic from the Valley into the Arterial roadway network on the west side of the Iliuliuk River. It is recommended that the City and the Highway Department evaluate alternative designs and traffic channelization techniques to minimize conflicts at this intersection. This could possibly be done at the same time the bridge across Iliuliuk River is being repaired.

The collector roadway network system illustrated on the Plan is intended to function primarily as a system feeding traffic onto and off of the arterial roads. The recommended plan contains 9.45 miles of Collector roads, 5.91 miles on Unalaska Island and 3.54 miles on Amaknak Island. Additional collector roads will be required and warranted in time; however, these are recommended to meet needs in the immediate future. These roadways should be developed to standards including minimum 40 foot rights-of-way with two lanes of traffic. Eventually, traffic volumes will warrant paving of some of these roadways.

There are no improvements or provisions presently for pedestrian circulation in the City despite the fact that there is a significant amount of pedestrian traffic in the community. The City should initiate a review of pedestrian movements in the heavily developed portions of the community, especially in the vicinity of the school, to determine if pedestrian walkways are warranted. Particular consideration should be given to development of a series of covered walkways connecting various parts of the government services-community center complex.

G. SEC. 14(c)(3) A.N.C.S.A. CONVEYANCE

Under provisions of Section 14(c)(3) of the Alaska Native Claims Settlement Act (ANCSA), the Ounalashka Corporation is required to convey to the City of Unalaska sufficient acreage of land area for community expansion. Conveyance is to be accomplished according to the Act after receipt by the Village Corporation of patent to the selected land. One

interpretation, that by the Federal State Land Use Planning Commission for Alaska, indicates that reconveyance is to occur upon the Corporation's receipt of interim conveyance.* Regardless of when the conveyance is to legally take place, the intent of Sec. 14(c) of the Settlement Act is to provide a mechanism to assure that those lands accruing to the Village Corporation which are vital to present community needs and which are needed to meet future community expansion will finally be conveyed to the local government entity for community use. The premise underlying requirement for these conveyances from the Corporation to the City is that those lands in the community which are needed to meet public purposes serving all the people of the community should be in the ownership of the local government, and that local government should own these lands on which public facilities presently are or will in the future be located. Since it was not possible to handle the literally hundreds of individual cases in the ANCSA legislation on a case by case basis, the legislation was written to require that the Village Corporation select all unappropriated federal lands in the "core townships" surrounding the Village location and then, upon receiving control of the lands, the Village Corporation is required to convey to the local government those lands needed for public purposes and community expansion.

Section 14(c)(3) of the A.N.C.S.A. is quoted below.

(3) the Village Corporation shall then convey to any Municipal Corporation in the Native Village or to the State in trust for any Municipal Corporation established in the Native Village in the future, title to the remaining surface estate of the improved land on which the Native Village is located and as much additional land as is necessary for community expansion, and appropriate rights-of-way for public use and other foreseeable community needs: Provided, that the amount of lands to be transferred to the Municipal Corporation or in trust to the State shall be no less than 1,280 acres;

The section in its entirety, as well as portions of it, have been the subject of various different interpretations, and significant controversy has developed in areas of the State over the intent and meaning of the Section. These controversies may be resolvable only through litigation. State legislation was adopted on the subject, however, that legislation has

*"14(c) Handbook", Reconveying Land Handbook for Village Corporations; Federal-State Land Use Planning Commission for Alaska, July 1975.

contributed little if anything towards clarification of any of the many controversies. The Alaska Department of Community and Regional Affairs is presently working to implement the state legislation, including establishing the administrative mechanisms for fulfilling the responsibilities assigned to it by the state act as the trust agent in cases where no municipality presently exists.

Since the Dutch Harbor Airport is involved in the conveyances that will occur at Unalaska, Sec. 14(c)(4) relative to airports is quoted below.

(4) the Village Corporation shall convey to the Federal Government, State or to the appropriate Municipal Corporation, title to the surface estate for existing airport sites, airway beacons, and other navigational aids, together with such additional acreage and/or easements as are necessary to provide related services and to insure safe approaches to airport runways; and . . .

The property on which the Dutch Harbor Airport is located is still owned by the U.S. Government. It has been selected by the Ounalashka Corporation and interim conveyance of that selection has been granted by the Bureau of Land Management to the Corporation. It is unknown when patent to the airport selection will be conveyed.

Since the City of Unalaska is not presently operating an airport facility, and since the State of Alaska is the agency which has historically operated airports of this type, it is assumed that the State of Alaska will be the agency receiving the acreage associated with the Dutch Harbor Airport. Recent efforts by the Alaska Division of Aviation to reach a tentative agreement with the Ounalashka Corporation as to what lands will be transferred to the state have been unsuccessful, however.

Consideration during the course of preparing this plan has been given to the acreage that should be conveyed by the Ounalashka Corporation to the City of Unalaska under the Sec. 14(c)(3) ANCSA provision. The project consultant has evaluated the Land Use Plan, the Community Facilities Plan as well as the other elements of the plan. Based upon the Consultant's evaluation of the Community's present and future land requirements to provide municipal services and perform its public functions, the following conclusions and recommendations have been reached. These are offered for the benefit of the City, as well as the Ounalashka Corporation; the acreage figures suggested for reconveyance are considered by the project consultant to be minimum in total. The question of acreage involved in the Airport conveyance should be thoroughly reviewed with both the State Division

of Aviation and the Federal Aviation Administration, which agencies are expert in this field, obviously. It is possible that additional acreage at the airport over and above that recommended here for conveyance will be required if there is to be any expansion and upgrading of airport facilities in the future. It should be pointed out that a general airport development plan should be prepared before final acreage figures for conveyance takes place on this facility.

Recommendations:

1. In areas where Village Corporation land selection has occurred within the City limits, rights-of-way on all existing roads and streets, whether platted or unplatted, should be conveyed to the City. When an arterial or collector road has been recommended on the Transportation Plan but no platted, dedicated public right-of-way exists, sufficient right-of-way should be conveyed to the City for future development of the community road system. Right-of-ways on the following roads should also be conveyed to the City: Captains Bay Road within the City limits and at least to the head of Captains Bay outside the City limits; Pyramid Creek Road within the City and at least to the site of the Pyramid Creek water supply dam outside the City limits; Unalaska Creek road to the Unalaska Creek water supply dam; all roads connecting to the arterial roads in both Pyramid Valley and Unalaska Creek Valley; the Iliuliuk Bay Road at least as far as the head of Summer Bay, a portion of which would be beyond the present City limits; and the Dutch Harbor Road along Ballyhoo Mountain. These rights-of-way have not been included in Table 16 or shown on Figure 19.

2. The land parcels and acreages noted in Table 16 should be conveyed to the City for the stated purposes under the provision of Sec. 14(c)(3) of ANCSA.

The code numbers in Table 16 correspond with those shown on the associated map, Figure 19. The acreage associated with the airport conveyance will, assumedly, be conveyed to the State of Alaska. The total land area thus recommended for conveyance to the City of Unalaska is approximately 2,444.5 acres. This is in addition to an undeterminable (at this time) amount of acreage that would be included in road and street rights-of-way.

3. It would be to the benefit of both the City and the Village Corporation to reach, at an early date, agreement in principal on the acreage to be conveyed and the road rights-of-way to be conveyed and how and when these will be conveyed. To allow agreement on this issue to be delayed for any lengthy period of time would serve to further complicate an already complex issue. Provisions may have to

TABLE 16

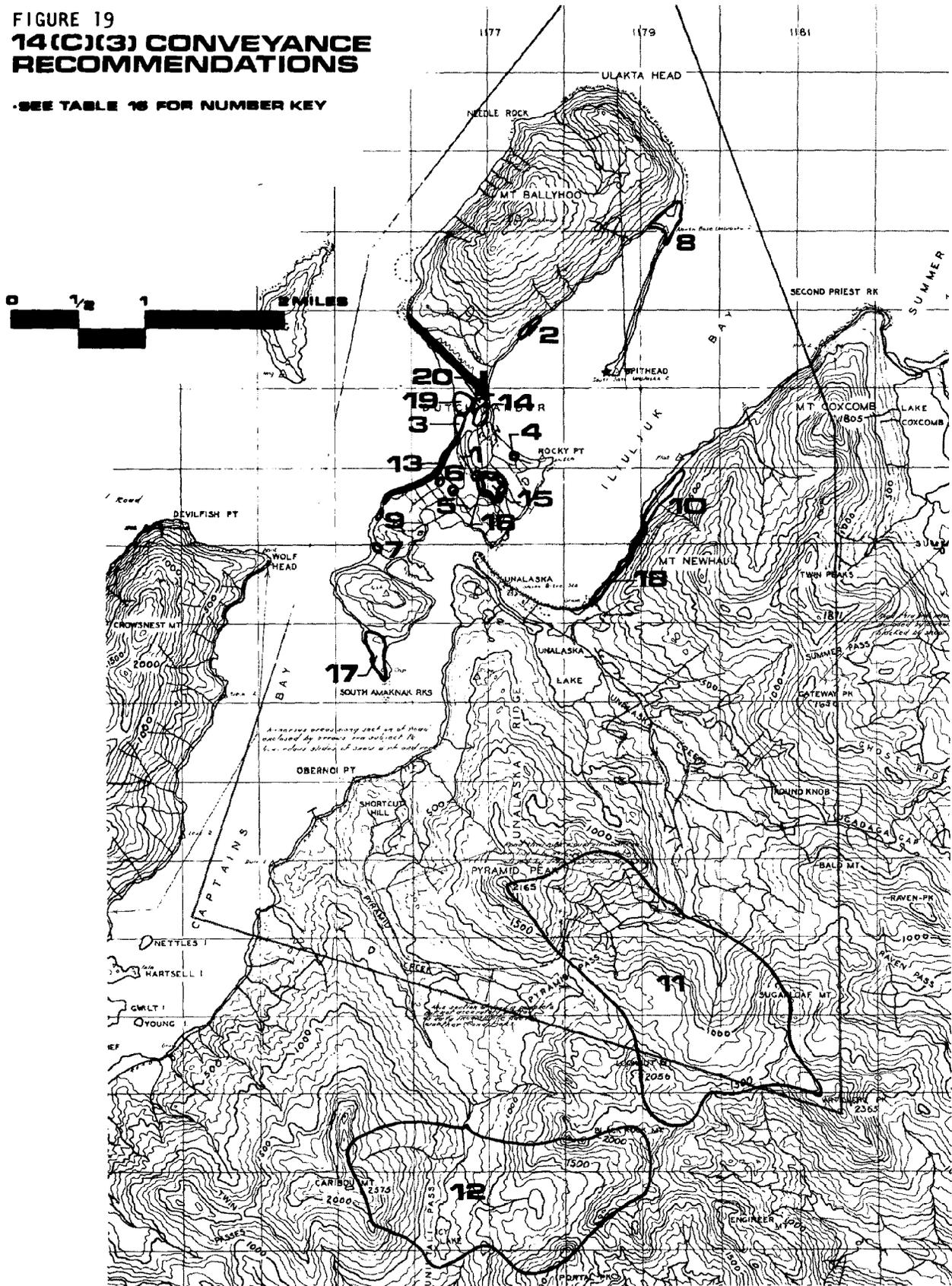
RECOMMENDED RECONVEYANCES TO CITY OF UNALASKA
UNDER SEC. 14(c) (3) A.N.C.S.A. (1)

<u>Location</u>	<u>Proposed Use</u>	<u>Acreage</u>
<u>Public Facilities:</u>		
<u>Amaknak Island</u>		
1. North Central	Community Center	2.5
2. Dutch Harbor	City Dock	20.0
3. Central Mainland	City Dock Backup Land	10.0
4. North Central	Power Plant	1.0
5. Central Mainland	Future School Site	5.0
6. Central Mainland	Public Safety Facility	2.5
7. No. South America	Sewer Treatment Plant/DPW Site	2.5
8. Dutch Harbor	Small Boat Harbor	20.0
9. N.W. Shoreline	Temp. Sanitary Landfill	5.0
<u>Unalaska Island:</u>		
10. Iliuliuk Bay	Sanitary Landfill	6.0
11. Unalaska Creek	Water Supply Preserve	1,160.0 (w/in City) 90.0 (outside City)
12. Pyramid Creek	Water Supply Preserve	1,040.0 (all outside City)
Subtotal Public Facilities:		2,364.5
<u>Park, Recreation & Open Space Facilities:</u>		
<u>Amaknak Island:</u>		
13. N.W. Shoreline	Open Space-Bluff & Shoreline	14.0
14. North Central	Neighborhood Park	8.0
15. Central Area	Fire Protection Water Reservoir	9.0
16. Central Area	Rec. Areas Surrounding Reservoir	13.0
17. So. Tip So. America	Open Space Reserve	16.0
<u>Unalaska Island:</u>		
18. Iliuliuk Bay Shoreline	Open Space	4.0
Subtotal Park, Recreational & Open Space Facilities		64.0 Acres
<u>Airport:</u>		
	(Primary Airport Facilities (2))	(65.0)
19. Related Industrial Land		11.0
20. Related Commercial Land		5.0
Subtotal Airport:		16.1 acres
Total Recommended Reconveyance, Sec. 14(c) (3)		<u>2,444.5</u> acres

- (1) Acreage figures are approximations.
(2) To be reconveyed to State or Municipality, whichever will be manager/Owner of Airport/see Sec. 14(c) (4) ANCSA

FIGURE 19
14(C)(3) CONVEYANCE
RECOMMENDATIONS

SEE TABLE 16 FOR NUMBER KEY



be developed to provide for full and unrestricted use by the City of certain sites prior to conveyance while details of specific site study, surveys and other efforts take place. Additionally, some final conveyances may have to be delayed into the future pending the City's making determinations resulting from site studies and preliminary design evaluations. In any case, efforts to implement the 14(c)(3) conveyance as well as determining appropriate action relative to annexation of land area and the impact of any annexation upon conveyances under Sec. 14(c)(3) should commence at an early time.

H. PLAN IMPLEMENTATION

Implementation of the Community Development Plan is an extremely important aspect of planning the future of a community. Without implementation, the time, effort and cost of the analyses and investigations of preparing the plan itself will be wasted and the community will receive no value from the planning accomplished. How a plan is implemented is frequently the key to success of the total planning effort. The correlation of the physical Development Plan with the City's financial plan and with programs for delivery of social and other services is critical. The effectiveness of the implementation strategy thus becomes key to the overall success of the Community's planning program.

As a First Class City under Alaska Statutes, Unalaska has at its disposal a full range of implementation tools including the power to regulate land use, density of development, extension of utilities and services, adoption and enforcement of land subdivision regulations, zoning ordinance, building code, and various plans for utilities, highways, etc. Additionally, the City has the authority to adopt a Capital Improvements Program and Capital Expenditure Budget. Given the power to tax real property and incur bonded indebtedness subject to a vote of the electorate, and to receive revenue sharing and federal and state government grant-in-aid funds, the City is actually well equipped to implement the Development Plan. Title 29 of the Alaska Statutes, coupled with the City's adopted code of ordinances constitutes the body of law from which the City draws its authority to act in implementing the Plan.

A full plan for implementation of the Community Development Plan is not included in this report as it was not included in the scope of work developed for the project by the City and the Alaska Department of Community and Regional Affairs. A brief overview of tools available to the City is presented, however.

1. PROCEDURAL CONSIDERATION. The City of Unalaska could choose to initiate implementation of the Plan by one of two methods. An ordinance officially adopting the plan could be enacted. This would give the Plan the status of law. Deviating from the law would require a change in the adapting ordinance including the holding of required public hearing and compliance with applicable procedures relative to amending laws of the City such as proper public notice. This approach is not recommended as there is insufficient flexibility for modifying the plan when circumstances warrant, and the City would, under this approach, be bound by law to strictly follow the Plan. Since the intent of the Plan is to serve as a guide, adoption by ordinance seems to be an excessive action not, in the opinion of the project consultant, warranted by the definition of planning.

The second approach, and that recommended, is adoption of the Plan by resolution of the City Council. By wording of the resolution the Council can indicate that it is the intent of the Council to establish the Plan as official City policy to which all administrative functions and advisory groups in the City Government are to adhere. It also signifies to concerned interests that it is the intent of the Council to guide the future development of the City according to the Plan elements. Adoption by resolution will satisfy the statutory requirement to have an adopted plan on which implementation actions are based and especially those actions involving land use control ordinances.

Despite the fact that adopting the Plan by resolution will not require, legally, the City to hold public hearings and give public notice of such intent, it is recommended none the less that the City Council provide for such procedures in the adopting ordinance. This will assure adequate opportunity for public input and participation in the planning process. At issue is the availability to the public of City Council actions regarding the plan. It is the Department of Community and Regional Affairs' position that for a comprehensive plan to remain a valid and useful tool to guide community development decisions it must be based on an accurate statement of community goals and objectives. In keeping with this, it is advisable to afford every opportunity to the public to express community desires concerning revisions to the plan precipitated by changing circumstances.

2. LAND USE CONTROLS. Various land use control measures are available to the City with which to implement the Plan. These are discussed below.

a. Zoning. Zoning control is the means by which the City can control the use of land and the density and intensity of uses. Building height, placement of structures on the lot and floor area square footage minimums can be

prescribed in the ordinance, as well as building setbacks, lot size, parking requirements, etc. The zoning ordinance must, however, be based upon the Land Use Plan and should be a short range expansion of the land use goals graphically exhibited by the Land Use Plan.

A zoning ordinance is composed of a map which classifies each parcel of land in the City as to its permitted use, and the supporting text which spells out the other requirements of the ordinance. Deviation from the ordinance requires amendment of the ordinance which must be based upon a demonstration that the proposed change is in the best interest of the community and not contrary to the intent of the Land Use Plan.

The City of Unalaska has a zoning ordinance including a text portion and a zoning district map. It is outdated, however, and not seriously enforced. It is recommended that the City initiate a review of the Ordinance once the Community Development Plan has been finalized and adopted. The ordinance should be revised to bring it more in conformity with the achievements sought in the Land Use Plan. The current zoning ordinance will be of questionable value once the new Land Use Plan is adopted and no effort should be made to enforce the present ordinance until it is revised to conform to the Land Use Plan. Such enforcement could, in fact, be illegal.

b. Land Subdivision Regulations. Land Subdivision Regulations are the legal vehicle which the City can use to control the subdivision and development of property within the City and to prescribe the minimum lot sizes for various uses, establish minimum standards of design and acceptability for public improvements constructed by the private developer of a parcel of land and to assure that property subdivided for resale to new owners is properly platted. Subdivision Regulations should be developed so as to function in concert with the Zoning Ordinance so as to achieve the maximum in desired development. Subdivision Regulations should be developed by persons proficient and knowledgeable in the legal and technical requirements for land subdivision and the design of public facilities, utilities and roadways.

The City of Unalaska does not currently have Land Subdivision Regulations. It is recommended that the City proceed to develop Land Subdivision Regulations after the Community Development Plan is adopted.

c. Housing, Building and Fire Codes. Housing, Building and Fire Codes are legal mechanisms whereby the City can enforce minimum safety standards for building design and construction and for achieving minimum acceptable

standards in housing. These types of regulations are not normally implemented in smaller communities but are almost always adopted in larger more heavily populated cities. The Uniform Building Code (UBC), a model standard for building design and construction published by the International Conference of Building Officials, is a generally accepted set of regulations which are frequently adopted by municipalities.

It is the project consultant's recommendation that the City of Unalaska consider adoption of that portion of the UBC pertaining to public buildings, places of public assembly, and commercial and industrial establishments. In this way, building structural quality of those facilities where high value is involved and where concentrations of people occur will be assured, thus minimizing the exposure to loss through disaster, fire and unreasonable deterioration.

3. CAPITAL IMPROVEMENTS PROGRAM AND CAPITAL BUDGET.

A Capital Improvements Program (CIP) is a five (5) year projection and prioritizing of public improvements to be made in the community. The first year of the plan is prepared in explicit detail with each successive year generally being in less detail than the year preceeding it. As the current year passes, the plan is reviewed, updated, projects reprioritized as appropriate and the next year program is presented in detail. A fifth year's proposed projects are added at the same time. A cost for development and source of funds is assigned to each project in the program. Companion to the program is the capital budget which details the next fiscal year's proposed capital expenditures and the specific source of funds of each project on the current year's program.

By developing a comprehensive CIP, the City is able to predict its public expenditures, determine how public funds are to be expended for priority items and project future revenue demands. Without a detailed CIP, annually updated and carefully prioritized, no community can hope to effectively manage its capital funds to the maximum benefit of the community.

The City of Unalaska currently utilizes the CIP approach to its capital expenditure budgeting. However, the City is entering into a period where a greatly increased level of public expenditure will likely occur and where a considerable number of projects involving millions of dollars will be occurring each year. It is essential that the City develop an up-to-date and detailed CIP on an annual basis. It is also essential that the CIP reflect all of the public improvements contained in the Community Development Plan. While the Plan contains a complete, almost "wish list" of projects, generally no priority has been placed on these projects. This is part of the process of preparing a CIP. In this sense, then, the

CIP becomes the single most important tool in implementing the Development plan. It is therefore recommended that the City Council, immediately after adopting the Development Plan, commission the preparation of a comprehensive and detailed five (5) year CIP. The Planning Commission should participate in preparing the CIP in that it should make recommendations to the Council on priority of projects. The CIP, however, should be initially prepared by the City administration and submitted to the Council. The project consultant cannot stress too strongly how important it is that the City develop a comprehensive and detailed CIP for use in future years. The cost and time to prepare a CIP will be repaid in sound fiscal management and betterment of the community many times over.

4. FUNDING SOURCES FOR COMMUNITY AND REGIONAL PLANNING.

There are a number of state and federal agencies that provide funding directly to municipalities for community and regional planning. A list of these agencies, together with a brief description of their services and means of contacting the agency, is shown in Appendix II. These agencies are those which provide funds for land use planning; not included are those agencies which either provide funds for the planning of specific programs, or provide funds for the planning/design of specific construction projects.

5. LOCAL PLANNING COMMISSION. The Planning Commission is a body of local citizens, established by ordinance, which is intended to be an advisory group to the City Council on matters pertaining to the future development of the community. It is generally composed of from five (5) to nine (9) members of the community who should be, collectively, representative of all interests in the community. The Commission's most important task is to review and recommend a Community Development Plan and to annually recommend modifications to the Plan. Secondly, the Commission should annually review the City's proposed Capital Improvements Program and make recommendations to the City Council on projects for inclusion in the CIP and the priority among those projects. The Commission can also serve in the same advisory capacity on requests for change in zoning district boundaries and amendments to the ordinance text. The Commission can also be charged with the responsibility to review any proposed subdivision plats to determine conformity to the official Street and Highway Plan if one exists or to ascertain conformity of the proposed subdivision plan with the Land Use Plan.

In all of these functions the Commission is an advisory group - not a body of final decision. The City Council could delegate certain final approval functions to the Planning Commission but this is not recommended in this case. The City of Unalaska has authority in its ordinances

for establishing a Planning Commission. In recent years the Commission has been inactive. The City Council recently appointed a new Commission. Efforts should be initiated to assure that the present Commission is well organized and functioning.

6. COASTAL ZONE MANAGEMENT. It is the recommendation of the project consultant that the City Council should, at the earliest opportunity, begin to address a Coastal Management Program. The applicable statutes and background information should be obtained, which will be available from the Coastal Policy Council, and the current status of the Coastal Policy Council's deliberations should be determined. After a thorough familiarization with this information, deliberations on various concepts should be undertaken and general consensus reached on some of the major issues. Constant monitoring of the Coastal Policy Council should be undertaken so as to enable the City Council to decide if, when and how to have input on the guideline deliberations. Municipalities which do not follow this procedure run the risk of having policies adopted by the Coastal Policy Council which may work well on a statewide basis, but which could be devastating to their own particular area.

A P P E N D I C E S

APPENDIX I: AGE AND SEX OF UNALASKA RESIDENTS
TABLE 17

APPENDIX II: FUNDING SOURCES FOR COMMUNITY AND
REGIONAL PLANNING

APPENDIX I

AGE AND SEX OF UNALASKA RESIDENTS

The City of Unalaska, in order to determine the effects of recent increases in economic activity on resident population, in early September, 1977, entered into a contract with Tryck, Nyman & Hayes, hereafter referred to as the Consultant, to perform a census of population of the City. Under the terms of the contract, the Consultant was to prepare the forms and instructions. City personnel were to then accomplish the field work, and the Consultant was to process the data and prepare a report. Prior to this census no reliable current demographic information existed on Unalaska inhabitants. No information was obtained in the census which would have the effect of changing any of the conclusions arrived at in the Community Development Plan.

Results of compiling the data indicate that there were 615 residents and 1,256 non-residents inhabiting the City of Unalaska at the time of the census, September 26 to October 8. This is an approximate 20 percent increase in residential population over what had previously been estimated, and an approximate 250 percent increase over the residential population indicated by the 1970 Federal Census. While the accuracy of the 1970 census has been questioned, it is certainly clear that the City of Unalaska has experienced, and is continuing to experience, a very rapid population increase this decade.

Table 17 contains the number of residents categorized by age and sex, together with a percentage for age categories of the total number of residents and the male-female proportions. Of particular note is the high proportion of males in the 18 to 34 age group, approximately one-quarter of the total resident population. Another point is the higher proportion of male residents; about 41 percent more males than females. This proportion is even more heavily exaggerated if we look only at adults 18 years of age and older; in this latter category there are 58 percent more males than females. These phenomena are indicative of the more "frontier" nature of Unalaska, and the greater proclivity of males, particularly young adult males, to seek more rugged environments in the pursuit of employment.

TABLE 17

UNALASKA RESIDENTS
AGE AND SEX

<u>Age</u>	<u>Sex</u>		<u>Total</u>	<u>%*</u>
	<u>Male</u>	<u>Female</u>		
0 - 4	23	18	41	7
5 - 12	28	40	68	11
13 - 17	28	19	47	8
18 - 24	46	46	92	15
25 - 34	107	56	163	27
35 - 44	42	23	65	11
45 - 54	40	22	62	10
55 - 64	19	14	33	5
65 - 74	4	2	6	1
75 and over	1	-	1	0
Unknown	22	15	37	6
TOTAL:	<u>360</u>	<u>255</u>	<u>615</u>	<u>100</u>
%*	59	41	100	

*Rounded to nearest %.

Source: City of Unalaska Census of Population
September 26 to October 8, 1977
Tryck, Nyman & Hayes and the City of Unalaska

APPENDIX II

FUNDING SOURCES FOR COMMUNITY AND REGIONAL PLANNING

FEDERAL AGENCY: ECONOMIC DEVELOPMENT ADMINISTRATION, DEPARTMENT OF COMMERCE

PROGRAM: Economic Development-State and Local Economic Development Planning (State and Local Planning Program)

OBJECTIVES: To develop the capability of state and local governments to undertake an economic development planning process that is comprehensive in scope, is coordinated with that of other state/sub-state planning activities, and leads to the formulation of development goals and specific strategies to achieve them, with particular emphasis on reducing unemployment and increasing incomes.

TYPES OF ASSISTANCE: Project Grants.

INFORMATION CONTACT:
C. Mark Smith
EDA Western Regional Office
1700 Westlake Avenue, North
Seattle, WA 98109

FEDERAL AGENCY: COMMUNITY PLANNING AND DEVELOPMENT, DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

PROGRAM: Community Development Block Grants/Discretionary Grants

OBJECTIVES: To develop viable urban communities including decent housing and a suitable living environment, and expand economic opportunities, principally for persons of low and moderate income.

TYPES OF ASSISTANCE: Project Grants

INFORMATION CONTACT:
Department of Housing and Urban Development
Arcade Plaza Building
1321 Second Avenue
Seattle, WA 98101

FEDERAL AGENCY: BUREAU OF INDIAN AFFAIRS, DEPARTMENT OF THE INTERIOR

PROGRAM: Indian Lands Real Estate Appraisal

OBJECTIVES: To provide professional real estate appraisal, mineral, and petroleum valuation service; and landscape architecture and urban planning services.

TYPES OF ASSISTANCE: Provision of Specialized Services.

ELIGIBILITY REQUIREMENTS:

Applicant Eligibility: Applicant must be an Indian or Indian tribe.

Beneficiary Eligibility: Same as applicant eligibility.

Credentials/Documentation: Must be a tribal member or have legal interest in trust property.

INFORMATION CONTACT:

Bureau of Indian Affairs
Juneau Area Office
Box 3-8000
Juneau, AK 99801

STATE AGENCY: DEPARTMENT OF COMMUNITY AND REGIONAL AFFAIRS

PROGRAM: Coastal Energy Impact Program

NATURE AND PURPOSE OF PROGRAM: This grant and loan program is designed to help communities and states minimize the social, economic and environmental disruptions that result from coastal energy activity, especially oil and gas exploration and development on the Outer Continental Shelf.

TYPE OF ASSISTANCE: Grants and loans.

INFORMATION CONTACT:

CEIP Coordinator
Division of Local Government Assistance
Department of Community and Regional Affairs
State of Alaska
Pouch B
Juneau, AK 99811

STATE AGENCY: DEPARTMENT OF COMMUNITY AND REGIONAL AFFAIRS

PROGRAM: Planning and Management Assistance (701)

NATURE AND PURPOSE OF PROGRAM: This grant and technical assistance program can support a broad range of planning and management activities for development planning, land use and management, planning ordinances, governmental development, public services, capital improvements, plan implementation, intergovernmental coordination, human and natural resource development, and training programs.

TYPE OF ASSISTANCE: Planning project grants-in-aid and technical assistance.

INFORMATION CONTACT:

Director
Division of Community Planning
Department of Community and Regional Affairs
State of Alaska
Pouch B
Juneau, Alaska 99811

STATE AGENCY: DEPARTMENT OF COMMUNITY AND REGIONAL AFFAIRS

PROGRAM: State Aid to Local Governments (Revenue Sharing Program)

NATURE AND PURPOSE OF PROGRAM: Provides general state aid.

TYPE OF ASSISTANCE: Financial. For services rendered as of July 1 of the entitlement year.

INFORMATION CONTACT:

Director, Division of Local Government Assistance
Department of Community and Regional Affairs
State of Alaska
Pouch B,
Juneau, AK 99811

STATE AGENCY: DEPARTMENT OF NATURAL RESOURCES

PROGRAM: Land and Water Conservation Fund (Bureau of Outdoor Recreation Grants)

NATURE AND PURPOSE OF PROGRAM: Provide assistance in planning, acquisition, and development of outdoor recreation areas and facilities.

TYPE OF ASSISTANCE: Financial

INFORMATION CONTACT:
Director, Division of Parks
Department of Natural Resources
819 Warehouse Avenue
Anchorage, AK 99501

STATE AGENCY: DEPARTMENT OF COMMUNITY AND REGIONAL AFFAIRS

PROGRAM: Coastal Management Assistance Program

NATURE AND PURPOSE OF PROGRAM: To provide coastal resource districts with training, research, and technical assistance necessary to develop and implement district coastal management programs pursuant to the Alaska Coastal Management Act of 1977. AS 46.35.

TYPES OF ASSISTANCE: Grants, research, training, and technical assistance to coastal resource districts.

INFORMATION CONTACT:
Director, Division of Community Planning
Alaska Department of Community and Regional Affairs
Pouch B
Juneau, AK 99811

This Report was prepared by the staff of the
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