ANCHORAGE COASTAL MANAGEMENT PLAN

PT. WORONZOF - PT. CAMPBELL WETLANDS MASTER PLAN

Prepared by: Management and Planning Services Alaska
and
The Municipal Planning Department
March
1982

of Anchorage
ient, Physical Planning Division
chorage, Alaska 99502-0650

Alaska Coastal Management Program

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Alaska Coastal Management Program

MUNICIPALITY OF ANCHORAGE

Tony Knowles, Mayor

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CHAPTER I INTRODUCTION

BACKGROUND

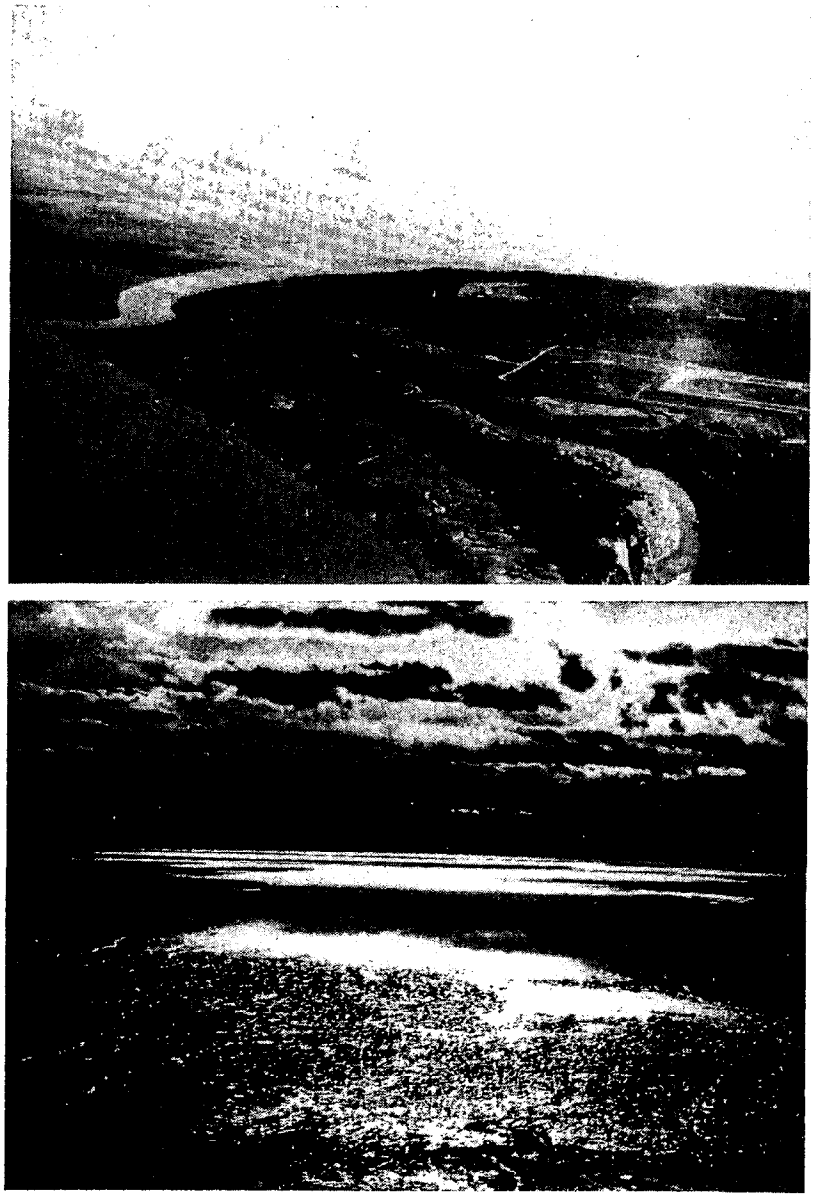
In response to the high public value inherent in coastal areas, the Alaska Coastal Management Program established policies and standards to preserve, protect and where possible, to restore or enhance the resources of the state's coastal zone. This plan specifically addresses the coastal wetlands located between Pt. Woronzof and Pt. Campbell. Its intent is to provide the Municipality with management recommendations and site plans for enhancement, use and access to these wetlands.

The shoreline of Anchorage has a number of scenic and recreational opportunities which have not been officially recognized or developed. Public access to the shore is limited. Most established access points are unofficial and frequently involve trespassing on private land or railroad right-of-way.

The Coastal Management Program recognizes the need to promote rational development in coastal areas while protecting vital resources. Because the coast has historically been an area where competition between the land uses is intense, protection of resources that are of high public value is most important. The use of the shoreline for recreation has become increasingly popular, creating demand for public access to the coast. As the population of Anchorage increases, sensitive ecological systems are likely to be threatened in the absence of farsighted management policies.

Anchorage enjoys a physical setting that would be hard to surpass. The natural resouces are as numerous as they are varied: rivers, forests, tidal and freshwater marshes, mountains and expanses of open space and water are all part of the setting. Mineral, fish, wildlife and waterfowl are abundant.

These resources are important to the residents of Anchorage because they provide an economic base and contribute immensely to the quality of life in the area. Often times these two benefits of natural resources are at odds. If resources are taken for their own value, there is the potential to contribute to



a declining economic base. Through planning and coordinated appropriate use it is possible to strike a balance that retains both benefits.

The coastline is a particularly concentrated area of resources. It brings together in one place land, water, marsh, tide flats, fish, mammals and birds. Because of this concentration, the coastline provides an excellent opportunity to observe and utilize these resources. However, the fragility of the coastline dicates that human use be planned and implemented in a manner that is sensitive to its tenuous nature. Furthermore, the coastline is susceptible to tremendous natural forces such as tidal action, earthquakes and storms. Planning and use must recognize these forces.

In March, 1980, the Anchorage Municipal Assembly approved the Anchorage Distict Coastal Management Plan, which provided a comprehensive background for planning and included an overview of the resources and setting, the legal requirements, a framework for management, definition of special areas and implementation measures. Subsequent studies have narrowed the focus. The Coastal Scenic Resources and Public Access Plan includes:

- potential shoreline recreation areas,
- identification of coastal scenic and habitat resources,
- consideration of historic and archaeological sites, and
- public access to shoreline amenities.

Furthermore, specific resource management plans are proposed for the six Areas Meriting Special Attention which have been identified in the Anchorage Coastal Management Plan. The Pt. Campbell - Pt. Woronzof wetlands is one of these six areas.

The Pt. Campbell - Pt. Woronzof Wetlands Master Plan buids on the concepts developed in the Anchorage Coastal Management Plan and the Coastal Scenic Resources and Access Plan, which recognized that the area has a high scenic, educational and recreational value. The following sections of the Master Plan will describe what is known of the Pt. Campbell wetlands and will recommend plans for the use and management of the resource based on the principles and objectives of the previous studies.

Environmental opportunities and constraints have been assessed in developing the master plan contained in this report. It is intended that the plan be used: (1) To minimize conflicting land uses; (2) to provide the public with recreational and educational opportunities which are not presently available; and (3) to protect an important public resource.

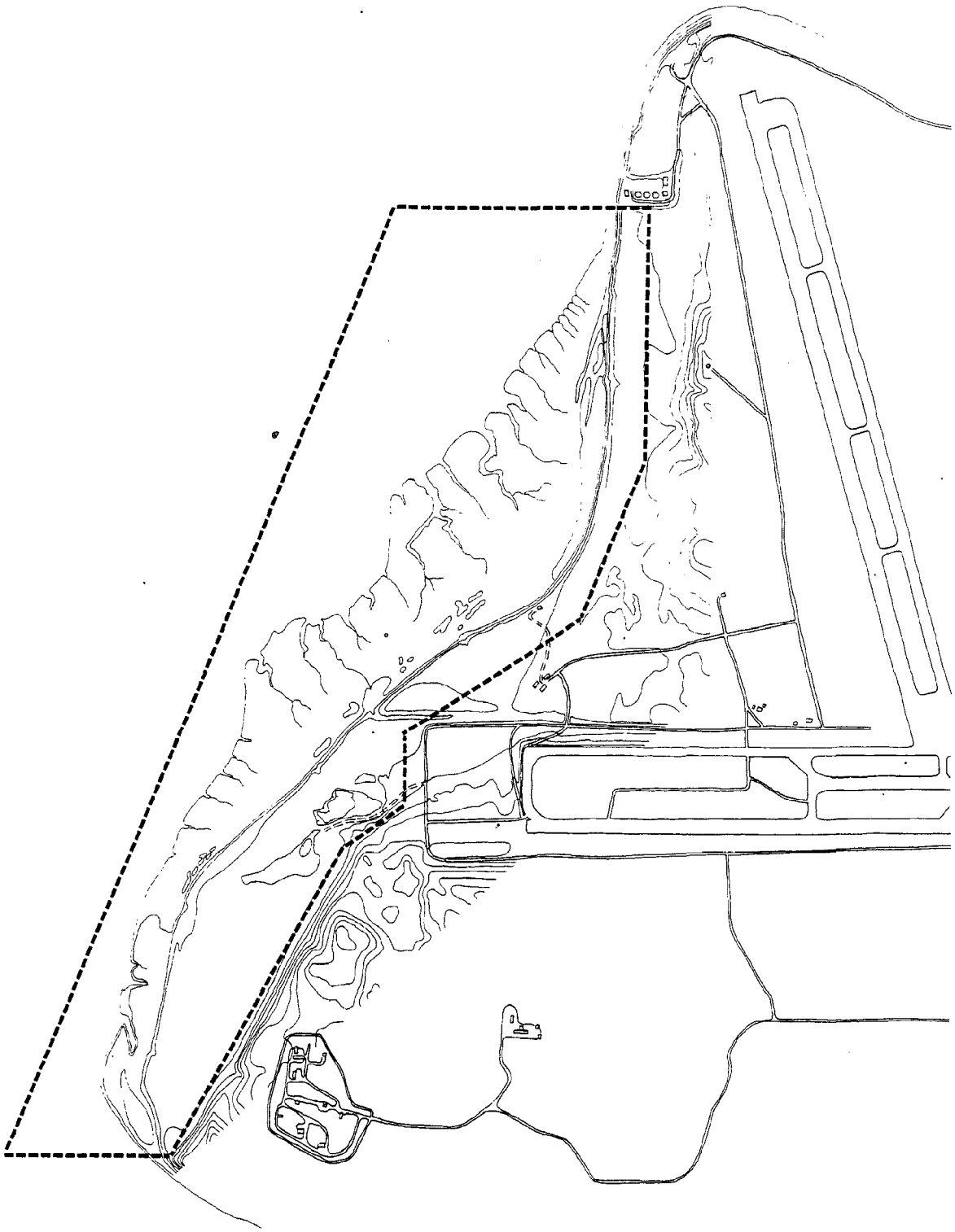
GEOGRAPHICAL SETTING

The Pt. Woronzof - Pt. Campbell Coastal Wetlands are located at the extreme western edge of the Anchorage Bowl. This shoreline wetland is situated below the bluffs and is adjacent to the Knik Arm of Cook Inlet. The wetland extends in a northeast by southwest direction, and is approximately three (3) miles long and two and one-forth (2¼) miles wide at its widest point. Figure 1 delineates the study area covered by this plan.

The Pt. Campbell - Pt. Woronzof Wetlands is the most remote coastal area in the Anchorage Bowl. It provides great recreational/scenic/educational opportunities separate from urban influences (save for the airport approach) yet it is a short distance from downtown Anchorage. When walking along the bluff or the beach the proximity of urban Alaska is not apparent.

The area affords expansive views to the west and north to Cook Inlet, Fire Island, the Aleutian and Alaska Ranges, and Mt. Susitna. Closer views include mud flats, wetland habitats, and the forested bluffs. Recreational opportunities of the Pt. Campbell wetlands could include scenic viewing, remote biking/walk ing/skiing, wildlife observation, and hunting. Educational aspects include the Tanaina Archaeological site, the wildlife and their associated habitat, and the nature of the dynamic shoreline.

FIGURE 1



PT. CAMPBELL - PT. WORONZOF MASTER PLAN

STUDY AREA

COASTAL MANAGEMENT PROGRAM REQUIREMENTS

This plan address four of the State of Alaska Coastal Management Program standards. They are all considered in the context of this plan. Standards and regulations addressed in this plan include:

6AAC 80-060 Recreation

16ACC 80.140 Air, Land, and Water Quality

Coastal Access

6AAC 80.160 Areas Meriting Special Attention

Use: Recreation

Applicable Standard

6AAC 80-060 Recreation

Districts shall designate areas for recreational use. Criteria for designation of areas of recreation use are:

(1) The area receives significant use by persons engaging in recreational pursuits or is a major tourist destination; or

(2) the area has potential for high quality recreational use because of physical, biological, or cultural features.

This standard obligates the districts to provide for the recreational needs of their areas by stipulating that areas shall be designated for recreational use.

AIR, LAND, AND WATER QUALITY

16AAC 80.140. AIR, LAND AND WATER QUALITY

Notwithstanding any other provision of this chapter, the statutes pertaining to and the regulations and procedures of the Alaska Department of Environmental Conservation with respect to the protection of air, land, and water quality are incorporated into the Alaska Coastal Management Program, and as administered by the agency, constitute the components of the coastal management program with respect to those purposes (Eff. Reg.) Authority: AS 44.19.893 AS 46. 40.040.

In addition to setting standards for major uses and activites in the coast, the Alaska Coastal Policy Council has identified and promulgated standards for eight major habitats. These standards are designed to protect and preserve these habitats, regardless of the use of activity which takes place with them. Therefore, in addition to satisfying an applicable use standard, a use or activity in a specified habitat must meet the relevant habitat standard. Habitats include:

(a) 1) offshore areas;
2) estuaries;
3) wetlands and tideflats;
4) rocky islands and seacliffs;
5) barrier islands and lagoons;
6) exposed high energy coasts;
7) rivers, streams, and lakes; and
8) important upland habitat.

The key standard applicable to all of these habitats is:

(b) The habitats contained in (a) of this section must be managed so as to maintain of enhance the biological, physical and chemical characteristics of the habitat which contribute to it capacity to support living resources.

Additional standards that apply to each habitat identified in (a) of this section are:

(c) 1. Offshore areas must be managed as a fisheries conservation zone so as to maintain or enhance the State's sport, commercial and subsistence fishery.

2. Estuaries must be managed so as to assure adequate water flow, natural circulation patterns, nutrients, and oxygen levels, and avoid the discharge of toxic wasts, silts, and destruction of productive habitat.

3. Wetlands and tideflats must be managed so as to assure adequate water flow, nutrients, and oxygen levels and avoid adverse effects on natural drainage patterns, the destruction of important habitat, and the discharge of toxic substances.
4. Rocky islands and seacliffs must be managed so as to avoid the harassment of wildlife, destruction of important habitat, and the introduction of competing or destructive species and predators.
5. Barrier islands and lagoons must be managed so as to maintain adequate flows of sediments, detritus, and water, avoid the alteration or redirection of wave energy which would lead to the filling in of lagoons or the erosion of barrier islands, and discourage activites which would decrease the use of barrier islands by coastal species, including polar bears and nesting birds.
6. High energy coasts must be managed by assuring the adequate mix and transport of sediments and nutrients and avoiding redirection of transport processes and wave energy. Rivers, streams, and lakes must be managed to protect natural vegetation, water quality, important fish or wildlife habitat and natural water flow.

IMPORTANT UPLAND HABITAT

This category is intended to include all upland areas within the coastal zone which are important for wildlife habitat.

No special standard has been promulgated.

In recognition of the fact that complete non-degradation is an impossible standard to meet, and that in certain instances trade offs between natural values and other human values will have to be made, the Council adopted the following:

(d) Uses and activities in the coastal area which will not conform to the standards contained in (b) and (c) of this section may be allowed by the district or appropriate State agency if the following are established:

(1) There is a significant public need for the proposed use or activity;

(2) There is no feasible and prudent alternative to meet the public needs for the proposed use or activity which would conform to the standards contained in (b) and (c) of this section; and

(3) all feasible and prudent steps to maximize conformance with the standards contained in (b) and (c) of this section will be taken.

SHORELINE ACCESS PLANNING ELEMENT

The Federal Coastal Management Act of 1972, as amended, specifically calls for states to develop a planning and management process to address public access and public use of coastal areas. Federal regulations pursuant to Section 305 (b) (7) of the Act cite six elements that are required in order for states to adequately address the access issue in the context of receiving Federal program approval.

The Alaska Coastal Policy Council is charged with developing the Alaska Coastal Zone Program. The council has adopted regulations for managing coastal areas in Title 6 of the Alaska Administrative Code (6 ACC 80.00 and 6 ACC 85.00). Although the regulations contain recreation concerns, there are no specific standards to guarantee public shoreline access. The Alaska Coastal Management Act and coastal regulations do, however, appear to grant authority to State agencies and local districts to plan for public access.

Therefore, Anchorage will, as part of its current and on-going coastal planning process, prepare a shoreline access in plan in accordance with the requirements of the ACMP program document.

AREAS MERITING SPECIAL ATTENTION

In Alaska, as in other states, much of the coastal area can be managed with only generalized land and water use controls. This in itself is expensive, but the fact that the effort must be spread over the entire coastal area results in an inability to properly recognize and manage certain areas that have unique values or fragile characteristics that make them more in need of special attention. By adding a special area identification and management element to a State coastal management program (including district programs), the financial and management resources of the program may be focused on such areas and detailed management programs developed. The State act refers to such areas as AREAS MERITING SPECIAL ATTENTION (AMSA'S).

As required by the ACMA and the ACMP regulations, districts shall designate AMSA's in their programs. The legislature provided a generic definition of ASMA's in the Alaska Coastal Management Act: AREAS WHICH MERIT SPECIAL ATTENTION means a delineated geographic area within the coastal area which is sensitive to change or alteration and which, because of plans or commitments or because a claim on the resources within the area delineated would preclude subsequent use of the resources to a conflicting or incompatible use, warrants special management attention, or which because of its value to the general public should be identified for current or future planning, protection, or acquisition; these areas, subject to council definition of criteria for their identification, include:

A. Areas of unique, scarce, fragile or vulnerable natural habitat, cultural value, historical significance, or scenic importance;
B. Areas of high natural productivity or essential habitat for living resources;
C. Areas of substantial recreational value or opportunity;
D. Areas where development of facilities is dependent upon the utilization of, or access to, coastal waters;
E. Areas of unique geologic or topographic significance which are susceptible to industrial or commercial development;
F. Areas of significant hazard due to storm, slides, floods, erosion or settlement; and
G. Areas needed to protect, maintain, or replenish coastal land or resources including coastal flood plains, aquifer recharge areas, beaches and offshore sand deposits.

(AS 46.40.210.(1)

In addition to the above criteria, the Alaska Coastal Policy council has added three more categories of areas to this listing:

1. Areas important for subsistence hunting, fishing, food gathering, and foraging;
2. Areas with special scientific values or opportunities, including those where ongoing research projects could be jeopardized by development or conflicting uses and activities; and
3. Potential estuarine or marine sanctuaries.

Section 160 of 6AAC 80.160 states; A Districts and appropriate State agencies shall recommend to the council areas to be designated as areas which merit special attention. Recommendations must include the following information:

1) the basis or bases for designation under AS46.210 (1) or (B) of this section;
2) a map showing the geographical location, surface area and where appropriate, bathymetry of the area;
3) a designation of the area which includes dominant physical and biological features;
4) the existing ownership, jurisdiction, and management status of the area, including the existing uses and activities;
5) present and anticipated conflict among uses and activities within or adjacent to the area, if any; and

6) a proposed management scheme, consisting of the following;
   a) a description of the uses and activities which will be considered proper and the uses and activities which will be considered improper with respect to land and water within the area;
   b) a summary or statement of the policies which will be applied in managing the area; and
   c) an identification of the authority which will be used to implement the proposed management scheme.

The Federal Coastal Zone Management Act of 1972 (Public Law 92-583) requires an inventory and designation of areas of particular concern within the coastal zone (Section 3056.3) and that the management program make provisions for preserving or restoring them for their conservation, recreational, ecological, or aesthetic values (3036.9).

Certain portions of the Municipality's coastal zone are of particular concern primarily because they are limited in number, have some special connection to an important event or time in the State's history or culture, are widely recognized for their singular beauty or attractiveness, or represent a resource of great value for recreational, scenic, physical features, educational or scientific research purposes. In many respects these areas represent a last stand, because once lost there are few if any others of their type, character or condition. In other cases areas may not warrant such dramatic action, but their presence requires a sensitivity to the resource, an awareness of its existence when making coastal zone management decisions. No specific standards are prescribed for areas meriting special attention, but the policies which will be applied to these areas must preserve, protect or restore the value for which the area was designated. A management scheme is required for these areas which identifies permissible uses, polices and mangement authorities.

AREAS MERITING SPECIAL ATTENTION

1) Name of Areas: Point Campbell - Point Woronzof Coastal Wetlands
2) Value Classification
   - Primary: Habitat, scenic, recreation
   - Associated: Wetland, salt water marsh, coastal flood zone
3) Location:
   - Region/Subregion: South Central, Anchorage
   - Community/Orientation/Distance: Area is within the Municipality of Anchorage.
   - Topographic Quad/1:25,000: Anchorage Bowl
4) Upland Acres:
5) Seaward Distance for Protection: To the Municipal political boundary in the Knik Arm of upper Cook Inlet.
6) Existing Ownership: State tidelands.
7) Existing Mangement: No present management except that which resides with appropriate state agencies having jurisdiction in tidelands under existing state statute.
8) Adjoining Ownership/Management: Upland ownership is comprised of the Municipality of Anchorage, the State of Alaska which leases land to the FAA, and a military site.
9) Area Description
   - Dominant Physical/Bilogical Features: Several reports have identified this coastal marsh vegetation which supports numerous species of wading birds and migatory waterfowl. The site is generally flat, boggy and vegetated with coastal marsh type grasses and is within the coastal flood plain.
   - Recreation, Scenic, Heritage or Wilderness Significance: The site offers scenic views across Cook Inlet and excellent views of Fire Island. The area is highly scenic

and offers an opportunity for nature viewing, photography, hiking and picnicking. The site is located close to the metropolitan area yet provides opportunities for viewing wildlife in a natural setting.

- Other Significant Resource/Land Values: The area is unsuitable for development. The area is a significant wetland that could accommodate recreational use to a growing urban area as well as provide nature viewing opportunities.

10) Proposed Management: The site should be designated as a State Game Refuge, administered by the State Department of Fish and Game and included and made part of Potter Game Refuge. Nature trails should be developed and public access provided. A management plan should be prepared jointly by the Municipality of Anchorage and the Alaska Division of Parks and Department of Fish and Game.

11) Allowable Uses: Coastal Wildlife habitat area, scenic, passive recreation, nature study, hiking, picnicking.

12) AMSA Categorical Classification:

1. Areas of Uniqure, scarce, fragile or vulnerable natural habitat, physical features, and scenic importance.
2. Areas of natural productivity or essential habitat for living resources, including fish, wildlife, and the various trophic levels in the food web critical to their well-being.
3. Areas of significant hazard if developed, because of storms, slides, floods, erosion, settlement, etc.
4. Areas needed to protect, maintain, or replenish coastal land or resources, including coastal flood plains, beaches and offshore sand deposits.

13) Present and Anticipated Conflicts

The area has been identified by Fish and Game and Tetra-Tec (a private consulting firm) as having a vegetative community that attracts a variety of birds and waterfowl. A site management plan will enure proper management of the site, protect property value above the bluff line and protect a valuable coastal wetland. Potential conflicts that may arise and compare for this wetland include; (1) offshore mining; and (2) the need for access of Fire Island.

PLANNING PROCESS

The process for developing the master plan is outlined in graphic form to illustrate the sequence of decision making steps (Figure 2). Data requirements were defined, data was collected, and new information sources were sought to fill gaps in the data. Baseline information was derived from numerous resource maps and interpretation of aerial photographs. Additional data-gathering activities included library research and field observation.

After the data was collected, it was sorted into relevant categories, synthesized, and mapped. A combination of visual resource and environmental information led to the identification of landscape types. Property ownership maps were used to identify land ownership constraints and suitable corridors for trails. Meetings and interviews with individuals and groups allowed public input into the process. Overlaying and synthesizing all the information led to an understanding of the constraints and opportunities of coastal areas. Based upon the results of the resource analysis a concept development plan was prepared while led to the master plan.

PROCESS

COASTAL MANAGEMENT RESOURCE INVENTORY AND ENVIRONMENTAL ANALYSIS FLOW CHART

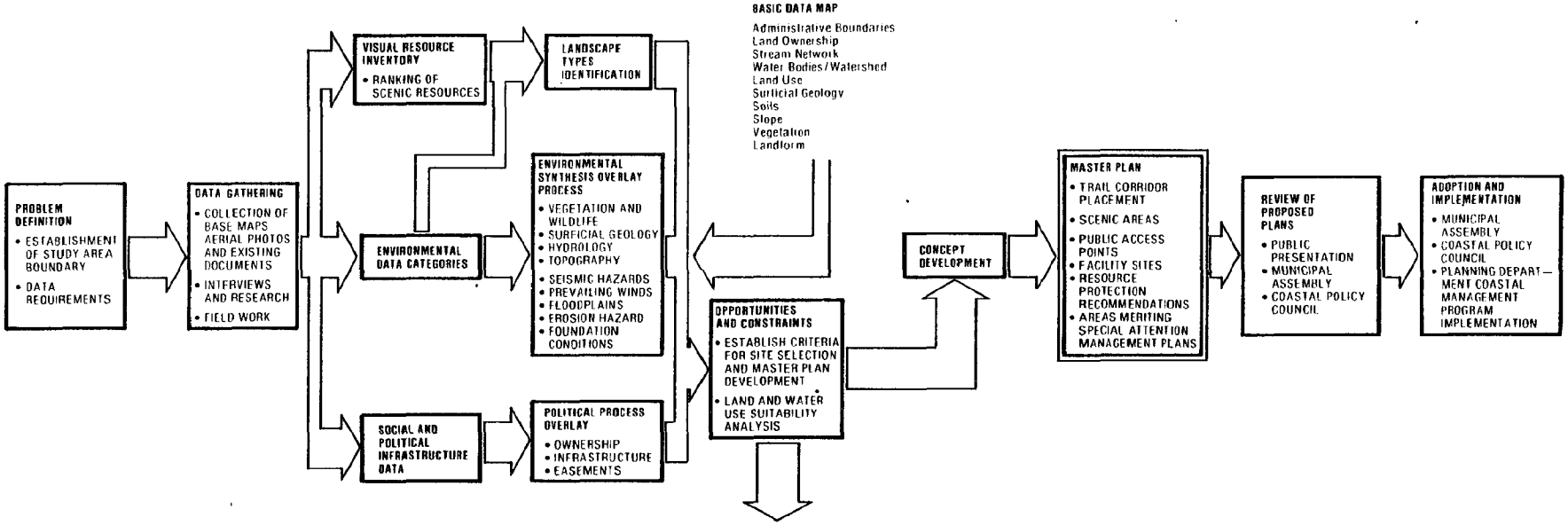
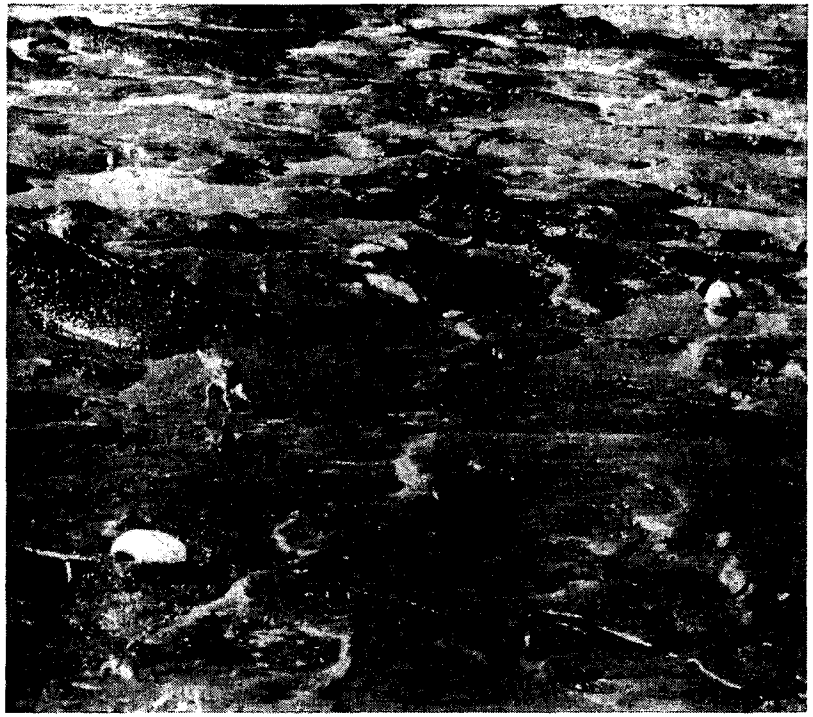


FIGURE 2

CHAPTER II ENVIRONMENTAL SYNTHESIS



OVERVIEW

This sections of this chapter describe the environmental factors, both natural and man-influenced, which led to the Master Plan concept. In the course of the project, the environmental factors were synthesized to identify the opportunites and constraints of land and water areas. Mapped information in this report includes land ownership, vegetation and habitats, geophysical hazards, and scenic resources. The visual resource section describes the field observation process and visual ranking system. The maps in this chapter represent a synthesis of information from several sources.

LAND USE, ZONING AND OWNERSHIP

(Figure 3 and 4)

Zoning and ownership information were obtained from records contained in the Municipal Planning Department. Zoning adjacent to the wetlands falls within two categories: PLI (Public Lands and Institutions), and unrestricted. Ownership of the wetlands is by the State of Alaska. Adjacent ownership patterns include the military at Pt. Campbell; State of Alaska: International Airport; Federal Aviation Administration; and Municipality of Anchorage.

Land uses vary widely along the bluff top and include the military facility, gravel pits at the west end of the E-W runway, Clitheroe Center, the Sewage Treatment Plant, Chugach Electric Substation, and a gravel pit at Pt. Woronzof.

Land uses within the coastal wetland are presently restricted to hunting and bird watching.

VEGETATION AND HABITATS

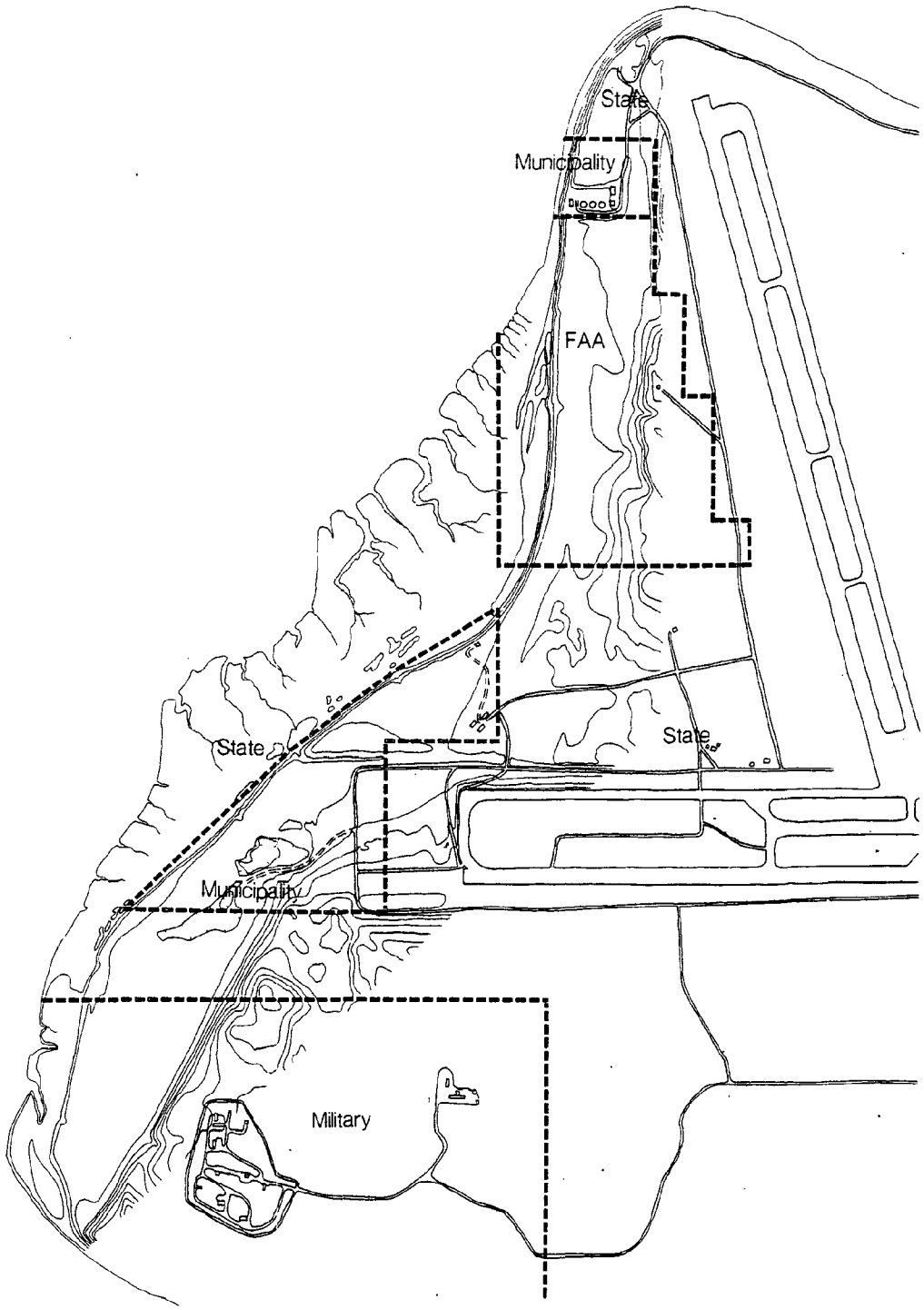
(Figure 5)

Habitats are characterized by different plant communities, elevation, and degree of tidal influence. The plants and animals found in each one are adapted to the particular ecological conditions found there.

Mudflat is the lowest of the habitat types in the Pt. Campbell wetlands and is covered and exposed with each tidal cycyle. Other than the startlingly green algae found in patterned mats in the summer, few plants grow here. Canada geese and Sandhill cranes can often be seen near the water's edge feeding on the algae mats. Shorebirds, such as the Least Sandpiper and Semipalmated Plover, feed on small invertebrates in the mud, especially along the tide channels.

Sedge Marsh is the dominant vegetation covering most of the wetlands. Depending on tide height, most or all of the marsh is covered with salt water each day. Characteristic of this habitat

FIGURE 3



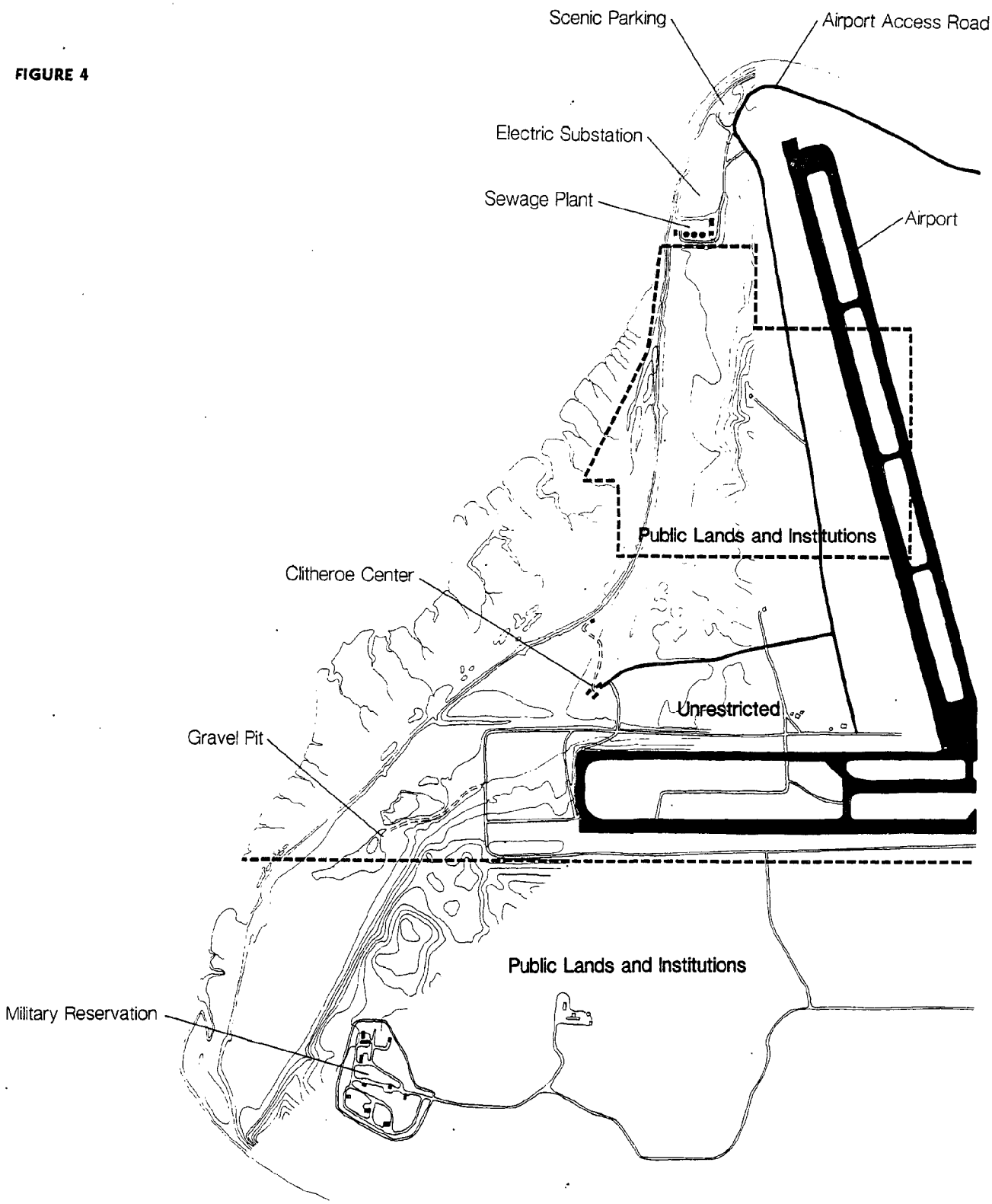
PT. CAMPBELL - PT. WORONZOF MASTER PLAN

OWNERSHIP

Contour interval, 5 meters

0 1000 2000 5000 Feet

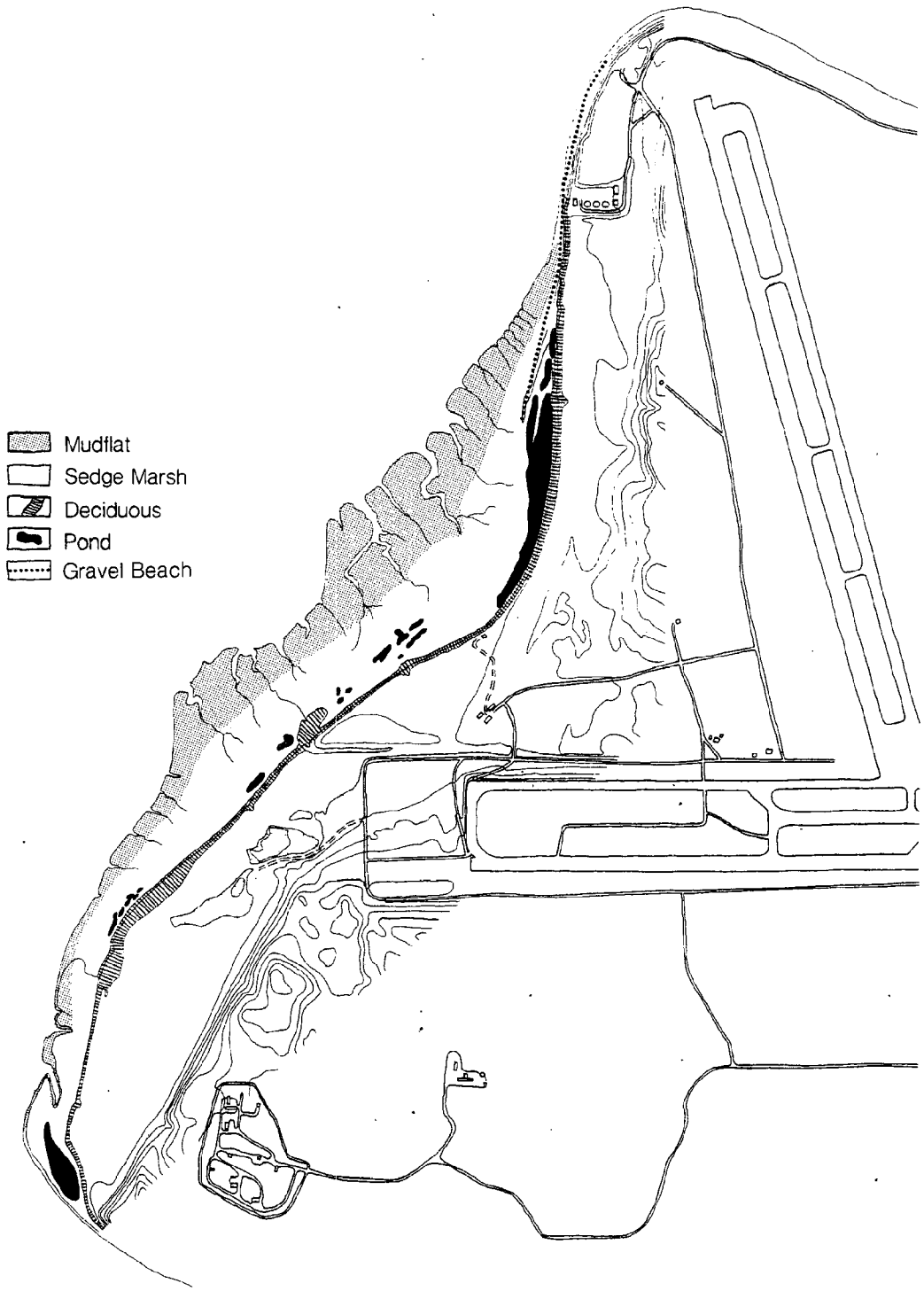
FIGURE 4



PT. CAMPBELL - PT. WORONZOF MASTER PLAN

LAND USE & ZONING

FIGURE 5



PT. CAMPBELL - PT. WORONZOF MASTER PLAN

HABITATS

are salt-tolerant plants such as Arrow and Alkali grass, Silverweed, and most abundantly, sedges, especially Lyngbye sedge. Sedges look like grass but have triangular, solid stems. Most of the wildlife that use the wetlands feed in this habitat.

Ponds are found along the base of the bluff. Depending on the amount of rain, runoff, and tide height, the ponds may be very brackish or nearly fresh. Some waterfowl nest on these ponds. Canada geese bring their broods here to raise them and shorebirds such as yellowlegs, Spotted Sandpipper, and Short-billed Dowitcher breed along their shores. The ponds provide a good safe resting place for migrant birds.

The **Deciduous Community** is found at the base and up the side of the bluff. This habitat is named for the common trees and shrubs that shed their leaves for winter. Paper birch, balsam poplar, alder, and willow are found here. Many small songbirds such as Black-capped Chickadee, Yellowrumped Warbler, Swainson's Thrush, Dark-eyed Junco, and White-crowned Sparrow nest in this habitat.

WILDLIFE RESOURCES

Birds

During the spring and fall, many birds use the Pt. Campbell wetlands as a resting and feeding stop on their long migratory flights. Spring is an especially exciting time for bird watchers as the kinds and numbers of birds present change daily. There is always a chance of a rare straggler from much farther south or from Siberia and southern Asia.

Waterfowl are the largest and most easily observed birds on the wetlands in the spring, summer, and fall. Whistling and Trumpeter swans stop on their way north to breed. Canada geese, Pintails, Shovelers, and American Wigeons all breed on the wetlands. Some of these birds are subject to international treatly requirements, thus restricting noncompatable uses in the wetland.

Extremely high spring tides in May and June may cover the flats right up to the bluff, so nesting there is precarious. Geese especially may nest in the uplands, then bring the precocious chicks down to the wetlands to feed and grow.

The Pt. Campbell wetlands may be one of the best spots in the Anchorage area to observe migratory shorebirds. Flocks of Dunlin, Least Sandpiper, Yellowlegs, and Short-billed Dowitcher can be seen in the spring with occasional Golden and Semipalmated Plver, Northern Phalarope, and Baird's and Pectoral Sandpipers.

Marsh Hawks, one of the area's more common birds of prey, hunt along the flats looking for small rodents, an occasional duckling, or shorebirds chick.

Mammals

The wetlands and coastal woodland support populations of water shrews, meadow voles, muskrat, varying hare, red squirrels, and occasional predators such as mink, raccoons, red foxes, coyotes, ermine, and mouse weasels. Hawks, owls, and eagles also feed on rodent populations in bogs and marshes.

One of the unique aspects of Anchorage is its resident moose population. Approximately ten to fifteen moose inhabit the urban area and are concentrated in the Point Campbell-Kincaid Park area.

Tracks in the soft mud of the trails and flats are often the only clue to the presence of mammals. Most are nocturnal or small enough to hide easily and are rarely seen. Larger mammals such as moose, coyote, and black and brown bear probably wander through the area occasionally but the Pt. Campbell wetlands is too small to be their entire range.

Pods of beluga or white whales swim by offshore in Cook Inlet. A group of these medium-size toothed whales lives in the area and may be an isolated population, as they normally occur much farther north.

Ecological Sensitivity

It is difficult to rank the habitats in order of most importance and most sensitive as they are all parts of a whole and alterations in one area will have an impact on the others. The ponds near the bluff, especially the large one in the north part of the study area, receive the heaviest wildlife usage as they are the least affected by the daily tidal cycles. Feeding, nesting and breeding generally occurs on all the ponds. While only feeding takes place on the mudflats and sedge marshes, this makes them no less important. In fact, if alterations such as dredging were to occur on the mudflats, the resultant erosion and loss of protection would likely affect the marshes and ponds and perhaps the bluff itself. Dredging and removal of the coastal marsh would also accelerate slumping of the bluff and subject the base of the bluff to increased coastal erosion.

Habitat Management Considerations

1) Wildlife protection requires habitat protection. This necessitates an understanding of the characteristics and vulnerabilities of each species to be protected.
2) In general, large, diverse habitat areas are more valuable than small, segregated areas of uniform type. Edge types -the transition zones between types of vegetation - are very rich biologically. Water corridors and riparian zones are also of high habitat value.
3) Habitat areas that are connected by a system of waterways should be managed as a unit whenever possible.
4) Breeding and nesting grounds may be the most sensitive areas to human interference. Many species are more adaptable in their feeding grounds than they are in choosing places to mate and rear their young.
5) Many animals need sheltered migration or movement corridors to water and feeding grounds. It is important not to block access to water, and to maintain natural cover whenever possible.
6) Buffer zones (defined by the Department of Fish and Game) are considered to be "bands of undisturbed land forms and/or vegetation along rivers, lakes, streams, marine waters and contiguous wetlands, or surrounding wildlife uses areas. The Department of Fish and Game recommends establishing buffer zones around anadromous fish streams and critical wildlife habitats which are highly sensitive to human disturbance.

Buffer zones are used to:

- — protect the vegetative component of the habitat
- — prevent pollutants from reaching a water body
- — prevent water courses and wetlands from being unnaturally altered by being filled in, channelized, dammed, and drained
- — avoid disruption of fish or wildlife populations during sensitive life history stages
- — protect watersheds and recharge areas

GEOPHYSICAL HAZARDS

The combination of fine grained unconsolidated deposits with the seismic activity characteristic of the Cook Inlet region create a number of fairly hazardous geological conditions. Most of the hazard zones are concentrated within the coastal management boundary, as the geophysical hazards synthesis map illustrates. In view of the high aesthetic, educational, and biological qualities and the general unsuitability of certain coastal areas for development, open space and passive recreation are appropriate uses of this land.

The elements of the geophysical hazards map are foundation stability, landside areas, unstable slopes, areas of coastal erosion, and high wind areas. These aspects were selected as having the most impact on land use in the coastal area, within the scope of this project.

Foundation Stability

Foundation stability is the ability of soils and other surficial material to support buildings and structures. Pt. Campbell wetlands have been categorized as follows:

Extremely Low: This category is composed of chiefly fine-grained materials (silt and clay) which have low bearing capacity. It also includes extensive areas of poorly drained material. In places, thick peat deposits or marsh conditions prevail. The peat is generally underlain by silt and clay. These areas are more difficult to modify to provide suitable foundation conditions. Excavation is hindered by unstable material and high water table. This condition exists throughout the wetland.

The bluffs adjacent to the wetland have been categorized as having low foundation stability.

Low: Silt and clay in this category may lack sufficient bearing capacity for heavy loads. Moderate to very steep slopes are potentially unstable. In places in the lowland, peat is at the surface and the water table may be high. In some of these places the peat can be removed, so that the water table can be lowered to improve foundation conditions.

Slope Stability

Slope stability is based on steepness and degree of cohesion of the slope face. Hazard areas within the study have been categorized as follows:

Extremely Unstable Slopes: Very steep slopes which are underlain by sand, silt and clay, or by landsilde deposits are subject to instability. The least stable slopes occur mainly on coastal bluffs where erosion is active. Such slopes are characterized by continuous downslope movements. This condition exists along the entire bluff adjacent to the wetland.

Coastal Erosion: Coastal erosion is caused by tides, wind and ice-scouring. The coast has been ranked 1, 2 and 3 according to severity of erosion processes:

Areas ranked (3) have slow to negligible coastal slopes in alluvial material and are not subject to tidal wave action under present shoreline conditions. This category includes shorelines protected by structures of other man-made stabilizing features (Anchorage dock, railroad embankments).

Areas ranked (2) have slow to moderate coastal erosion. Bluffs and beaches which are subject to occasional tidal and wave action are included.

Areas of rapid coastal erosion are ranked (1). Bluffs at Point Woronzof are directly exposed to frequent tidal and wave action. The rate of horizontal retreat is up to 2.5 feet per year.

Wind

Most coastal areas are subject to high winds. One or two wind storms up to 50 miles per hour can be expected, with occasional gusts to 100 m.p.h. Two types of wind storms are responsible for damage along the coast (see arrows on map):

1) North winds caused by cold air masses displacing the prevailing southerly airflow affect waterfront areas.
2) Strong funneled "Chugach Winds" originate in the passes of the Chugach Mountains. They blow along the Turnagin Arm in a generally southeasterly direction.

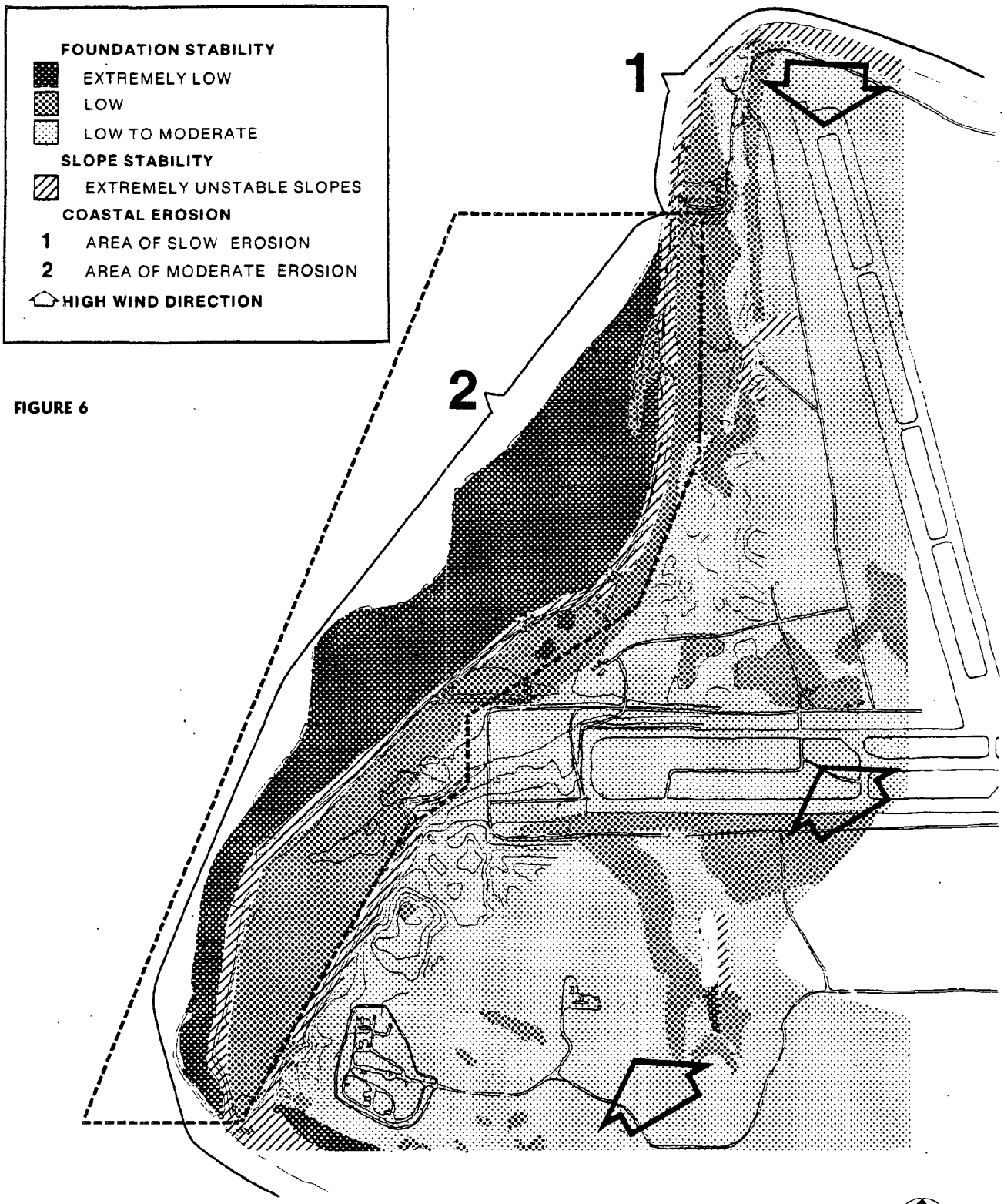


FIGURE 6

PT. CAMPBELL - PT. WORONZOF MASTER PLAN

GEOPHYSICAL HAZARDS

SCENIC RESOUCES INVENTORY

The Anchorage coastline features a continuum of outstanding vistas, and an array of natural and man-made scenic resources. However, in the past there has been little planning for aesthetic quality in the coastal zone. Coastal development is limited in Anchorage except along the urban waterfront, so the impacts are not as severe as they might have been. Some unsightly areas, such as dumps and gravel pits, could be improved with careful site planning. As coastal land use increases, it becomes necessary to identify and prioritize scenic resources. A greater understanding of the interaction of man-made and natural elements will prevent negative effects on visual quality. Scenic resources planning serves as a guide for other land and resource planning decisions.

Visual Management Considerations

1) Adopt site selection and site design criteria for facilities within the shoreline view area;
2) Limit construction to water related or environmentally compatible uses;
3) Acquire title and easements to protect and provide public access to important scenic viewpoints and adjacent areas;
4) Facilitate removal or enhancement of eyesores.

Management Concepts

Each of the landscape types in the following discussion has been ranked according to its degree of sensitivity in three categories:

Ecological/Biological Sensitivity: A high rank in ecological/biological sensitivity indicates important habitat for a large number of species, or critical habitat for one or more species. Human impact in these areas will be detrimental to the habitat in the absence of adequate control mechanisms.

Physical Sensitivity: Physical sensitivity is characterized by land not physically able to withstand intensive uses, due to poor foundation stability, susceptibility to soil compaction, hydrologic sensitivity or other hazards. Although engineering solutions are possible in most areas, these are likely to be expensive or temporary at best.

Visual Sensitivity: Open or unprotected areas, which are likely to be changed significantly in appearance by most types of development, are considered to be visually sensitive. The landscape types are rated High, Medium or Low in sensitivity according to the above criteria.

General Management Recommendations for All Wetland Types (from Clark, Coastal Ecosystem Management):

1) Maintain natural supply of nutrients
2) Prevent excessive discharge of nitrogenous compounds into confined coastal waters
3) Maintain natural oxygen concentration
4) Protect storage components of ecosystem
5) Maintain natural water temperatures
6) Avoid increase in sediment load
7) Avoid blockage of waterflow, drainage or circulation
8) Prevent discharge of toxic wastes into coastal waters
9) High degree of development require more stringent waterlands preservation techniques.

Landscape Type: Beach

Location: The coastal beaches consist of narrow bands of pebbles, gravel or snad along Knik Arm from Nulbay Park to Bootlegger Cove Log House. These are located from Fish Creek to Earthquake Park in the slide area, west of Earthquake Park to beyond the Sewage Treatment Plant, and the south side of Point Campbell.

Environmental Sensitivity Rating:
Ecological/Biological: Medium
Physical: High
Visual: High

Coastal Management Consideration for Project Area: Beaches in the Anchorage Bowl are commonly associated with erosion of the vertical bluff landscape type, as on the southern edge of Point Campbell and the Point Woronzof area. They are generally found inland of the tideflats, with a very sharp gradient between. Recreational uses include jogging, walking and beachcombing at low tide. Small boat use is extremely hazardous, though a few Bootlegger Cove dories are moored north of Westchester Lagoon. The extreme tides and cold water prevent traditional beach uses.

The Sewage Treatment Plant outfall currently affects beach quality at Pt. Woronzof. An extended outfall pipe will be installed soon to improve tidal flashing of the area.

Safety hazards are present below the bluffs in spring, so beaches may have to be closed from the onset of break-up until June 1. Warning signs would be appropriate in areas of active bluff erosion. High tides cover the beaches completely, and it would be reasonable to provide tide tables near beach access points so the visitors could check when to use them safetly. These beaches are highly scenic, but are not particularly valuable as wildlife habitat.

Landscape Type: Mudflats

Location: Mudflats consist of an area of shifting silt and sand below mean water level, surrounding the entire Anchorage coastline.

Environmental Sensitivity Rating:
Ecological/Biological: Medium
Physical: High
Visual: High

Coastal Management Considerations for Project Area: Despite their seemingly barren appearance, mudflats serve an important function as nutrient storage areas, catching vital dissolved chemicals that would otherwise be swept out to sea. Invertebrate organisms that normally inhabit coastal mudflasts are limited in this area due to the high sediment load in the water. Filamentous green algal mats which form on the mudflats have a high aesthetic value, and may be damaged by boating activities. Mudflats near Anchorage have qualities similar to quicksand; several people have lost their lives by walking on them too far from shore. Warning signs should be posted near beach access points so that visitors will be aware of the danger. Recreational potential on the mudflats is limited, except for duck hunting and wildlife observation. Due to its high hazard rating (ice buildup, poor fundation conditions, exposure to wind and tides) and visual sensitivity, it is not suitable for most types of development or recreational use.

Landscape Type: Tidal Wetlands

Location: Includes tidal marsh of the Point Campbell - Point Woronzof wetlands, and coastal strip between Kincaid Park and Potter Marsh.

Environmental Sensitivity Rating:
Ecological/Biological: High
Physical: High
Visual: High

Coastal Management Considerations for the Project Area: Tidal wetlands are vegetated by salt-tolerant deciduous plants and marsh species. This is prime waterfowl nesting and feeding area, and habitat for various species of rodents and predatory birds,

including eagles. It is an important buffer area in reducing the effect of coastal erosion processes and flooding. Salt marshes also serve as filters for runoff from upland sources and control release of nutrients to coastal waters.

Tidal wetlands can support dispersed or low-impact forms of recreation, with seasonable limitations on some activities that would disturb nesting waterfowl. They are not suitable for development due to poor foundation conditions and significance of the biologically rich ecosystem. Access on boardwalks is appropriate if these areas are highly used. Construction should occur after freezing in the fall. Dogs should be kept on leashes in this area to avoid impacts on nesting activities.

Landscape Type: Vertical Bluff

Location: The vertical bluff landscape type can be found from Point Campbell and Point Woronzof, and below Oceanview to Potter Marsh.

Environmental Sensitivity Rating:
Ecological/Biological: Low
Physical: High
Visual: High

Coastal Management Consideration for Project Area: Habitat value of unvegetated coastal bluffs is minimal, except for nesting cliff swallows. Recreational value is limited, and steep cliffs are not conducive to easy access. However, bluffs are highly visible and interesting from scenic and educational standpoints. They clearly illustrate the shoreline dynamics of the Anchorage Bowl. Buildings on the bluffs require setbacks of at least 100 feet to avoid continuing erosion. Restricted use of the area below the bluff is necessary in spring, when constant mudflows and landsides occur.

Access

Access to the wetlands is by the Old Clay Products Road and the new airport access road that leads to the Clitheroe Center. Pedestrians and vehicles may gain beach access to the scenic area at the end of the Old Clay Products Road. The wetlands are about a mile south on the gravel beach. Access through the Clitheroe Center is at the discretion of the management.

Construction of the north-south runway at the Anchorage International Airport has increased the access to the wetland area between Pt. Woronzof and Pt. Campbell. Because of this the area is experiencing increasing use by bird watchers. Accurate data about the numbers and types of species using the area is just beginning to be developed. Wildlife has been a long-term user of the area and hopefully the observation and the recording of information will reveal the extent of the use and the importance of the habitat to the wildlife.

The beach and wetlands are also used by drivers of all-terrain vehicles. Access to the area is by a jeep track down from the gravel pit at the end of Old Clay Products Road. People walking the beach and wetlands also use this access.

RESOURCE ANALYSIS CONCLUSIONS

Based upon a resource analysis of the coastal wetland situated between Pt. Woronzof and Pt. Campbell, it was determined that the wetlands exhibit a high degree of ecological sensitivity and are best suited for open space. Data used to conduct the resource analysis included landforms, vegetation, slope, surface form, mass wasting, habitats, land use, geology, soil drainage, visual quality, wetlands, soils erosion, ground stability, soil engineering limitations, seismically induced ground failure, and floodplain.

COASTAL FLOODPLAIN: The entire wetland is subject to inundation.

WETLAND: The site is a coastal wetland (tidal/marsh).

SLOPE: Bluffs adjacent to the wetland range from 45% to 100%.

SEISMIC HAZARD: The wetland is subject to moderate ground failure susceptibility and the adjacent bluff is subject to a high

ground failure susceptibility. The entire study area is subject to seismically induced subsidence.

SURFICAL GEOLOGY: The surficial geologic structure is silt subject to moderate erosion, and the wetland exhibits poor foundation conditions. The adjacent bluff exhibits generally fair to poor foundation conditions.

EROSION: Coastal erosion is generally moderate at the wetland. Immergent and existing vegetation is tending to stabilize the site in general.

HABITAT: The wetland in general, and particularly the ponds adjacent to the bluff line are very important habitat areas for shorebirds and migratory waterfowl.

VISUAL QUALITY: Visual quality is high throughout the area, and selected sites on the bluff top offer exceptional views of the Alaska Range in all directions.

VEGETATION: A variety of marsh type vegetation exists in the wetland and is responsible for the habitat that currently exists. The vegetation is sensitive to human induced impacts and could be destroyed if improperly used.

SOILS: The soils is loamy cryaquents and consists of nearly level, poorly drained sandy, silty, and clayey stratified sediments deposited on low lying coastal plains. It is, in general, dangerous to walk on and if sufficiently saturated, tends to act like quicksand.

SOIL DRAINAGE: Soil drainage is poor.

LANDFORM: The dominant landform is tidal marsh.

SOIL ENGINEERING LIMITATIONS: Severe constraints exist for all possible dwellings, commercial buildings, and roads. It has low load bearing capacity.

ICE HAZARDS: Large chunks of ice frequently breakoff and become lodged on the wetland during winter creating a major constraint to any development.

OPPORTUNITIES AND CONSTRAINTS

From the previous discussion the following opportunities and constraints may be summarized. These have been considered in the Master Plan.

OPPORTUNITIES

- historic
- educational
- scenic
- recreational
- wildlife habitats
- remote experience, yet close to Anchorage
- public ownership

CONSTRAINTS

- airport noise
- sewage treatment plant odors
- hunting
- dredging potential
- petrochemical plant potential
- sensitive habitat
- sensitive archaeological site
- some incompatible uses

OTHER PLANS AND ACTIVITIES AFFECTING THE STUDY AREA

1. Coastal Scenic Resource and Public Access Plan

This is the primary plan affecting the study area and the Pt. Campbell - Pt. Woronzof Master Plan is built on its concepts. Within the study area the plan proposed the following:

- a bike/pedestrian/equestrian path along the top of the bluff;
- the Tanaina Archaeological site;
- the Pt. Campbell - Pt. Woronzof wetlands; and
- the Pt. Campbell recreation area.

The bike path is part of a coastal trail system that will eventually go from Ship Creek on the north to Potter Marsh on the south. The equestrian portion of the trail is proposed to run from Earthquake Park to Kincaid Park and would be unpaved and separated from the paved bike path.

The Tanaina Archaeological site is approximately ¼ mile south of the sewage treatment plant and to the west of the proposed bike path. It is the only known archaeological site in the Anchorage Bowl. Ideally, location of the bike path should not be determined until a thorough investigation of the site is made. The trail should give the site wide berth and the site should be publicized.

The Access Plan studied the Pt. Campbell - Pt. Woronzof Wetlands conceptually and proposed the following:

- The bike path would provide access to the area and would be on top of the bluff.
- A bird blind and nature trail should be located below the bluff.
- Access to the coast would be provided in the vicinity of the proposed east-west fence on the north side of the airport runway.
- Access points would also be established at the Tanaina site and the Pt. Campbell recreation area after these sites are developed.
- No hunting would be allowed after the public access facilities were developed or would be regulated so that it could be accommodated in a safe manner.
- The site should be designated as a State Game Refuge and made part of the Potter Game Refudge.

These points will be developed further in this study.

At the southern end of the study area, the Pt. Campbell recreation area is proposed. This site would include:

- picnic and campground areas
- equestrian trails
- dirt bike and off-road vehicle routes
- winter sports facility

Currently the Nordic Ski Club is also proposing use of the area for skiing.

Cook Inlet Exploration and Development, Inc. has a mining permit and lease on section 20, 29, 31, and 32 for the purpose of conducting mining activities. Mining will be conducted via the use of an offshore dredge. This activity will require an onshore facility for the stock piling, sorting, and grading of gravel. To be included as part of the onshore facilities will be a mill site and other structures for facilities, operations, storage and equipment repair. Operations are expected to commence in the spring of 1983.

CHAPTER III MASTER PLAN

STUDY SITE PLANNING CRITERIA

1. Human and cultural values
   A. Educational opportunities, including increasing public awareness and coordinating with school programs
   B. Integration of existing recreational activities and facilities with coastal trails plan
   C. Unique or unusual viewing opportunities

2. Environmental Values
   A. Protection of fish and wildlife habitat
   B. Preservation of wetlands and other ecologically sensitive areas
   C. Erosion control and mitigation of geophysical hazards
   D. Preservation of natural landscape patterns

3. Reconciliation of multiple uses
   A. Consideration of tourist and local needs
   B. Opportunities for all age groups and population segments
   C. Long range considerations vs. short term use tradeoffs

4. Economic and political criteria
   A. Construction and implementation costs
   B. Political feasibility
   C. Land ownership

5. Public Access
   A. Existing pedestrian use
   B. Connections to existing and proposed bike routes
   C. Road access
   D. Proximity to anticipated user groups
   E. Linkage of activity areas in logical sequence

MASTER PLAN CONSIDERATIONS

Resource

The most important determinants of the plan are the resources that exist in the Pt. Campbell - Pt. Woronzof wetlands, that is:

- the habitat;
- the wildlife using the habitat; and
- the scenic opportunites.

The plan is developed to take maximum advantage of these and at the same time minimize impact on the resource. As discussed in the section above, wildlife can be seen in all the four habitat areas: mudflats, sedge marsh, ponds, and deciduous forest. The plan recommends viewing areas where all four habitats can be seen.

Scenic vistas can be had from the bluff as well as on the wetlands themselves.

Activities

The resources described above present opportunities for a number of different activities in the study area. These include:

- biking, hiking, skiing and jogging along the coastal bike path;
- nature watching from the bluff and beach;
- scenic viewing from the bluff and beach;
- historic interpretation of the Tanaina site;
- educational opportunities at all the above areas.

The following decribes the proposed access and facilities to make these activities possible with the least impact.

Access and Facilities

Vehicle Access/Parking — The main vehicle access to the area from Anchorage is the new west access road to the airport which is reached by traveling west on Northern Lights Boulevard. Parking areas should be provided at the north end of the study area and just north of the Clitheroe Center. At the north end parking could be combined with the Old Cly Products Road

Scenic area. If plans for this area are indefinite parking could be provided just north of the Sewage Treatment Plant. This parking area would allow access to the bike path or to the gravel beach. However, this location is somewhat distant from proposed viewing facilities along the bike path so another parking area just north of the Clitheroe Center should be provided. This will provide more convenient access to the viewing facilities for users who do not ride bikes or walk long distances. It will also take pressure off the Clitheroe Center. Some interpretive signage, including a distribution point for the brochure, should be provided at the parking areas.

Bike Path — Access to the area will also be provided by the coastal bike path which will run the entire length of the bluff above the wetlands. This path will follow existing cleared electrical and pipeline easements. Location of the path through or around the Tanaina Archaeological site should be sensitive to the requirements of planning for the site. Turn out areas will be provided at the viewing platform locations.

Viewing Platform — It is recommended that in the bluff area above the large freshwater pond one or two viewing platforms should be provided. The actual number will depend on the number of sites that would be suitable from a construction and viewing standpoint, and more importantly, the amount of disruption the wildlife will tolerate. Knowledgeable individuals familiar with the site should be consulted when making this determination.

Refer to the cross section drawings to see the concept of the platforms. The actual viewing platform should be the same height as the bluff. This provides the viewer with views down into the habitat as well as expansive views over Cook Inlet. It also gives a closer look at the birds using the wooded habitat on the bluff. The height keeps viewers away from habitat area and access should not be provided down to the marsh. This will insure minimum impact on the habitat and the wildlife. The platforms should be constructed so they just emerge from the tree canopy so views are unobstructed, yet keeping the main portion of the structure concealed. The platforms should be covered to provide all - weather viewing opportunities. High power telescopes could be provided, as well as interpretive information.

Further south on the trail, just west of the potato patch, another viewing area should be provided. The bluff is not as high here and there is less tree cover. This platform should be larger, but not as high off the ground. Views can be had of habitats to the north and south as well as vistas to the west. The areas in front of this platform are not as sensitive as the larger pond habitat to the north, so access down to the wetland could be provided here. A portion of the platform should be covered and telescopes and interpretive materials should be provided.

Another potential viewing platform location exists at the southern end of the study area near the large pond on Pt. Campbell. Access to this area was not available during this study and local bird watchers were not that familiar with the pond. Once the bike path is extended past this point, observation should determine whether a platform is warranted.

Beach Access — The gravel beach to the north of the wetlands provides good access to the northern part of the study area. The beach leads to a natural sand and gravel dune that extends partially into the wetlands, providing good natural access. It is recommended that this be left in its natural state without any man-made improvements. During the winter, high tides and ice blocks reach the toe of the bluff, so any structure would likely be damaged.

Beach access is proposed north of the Tanaina Archaeological site and could connect with the dune walk. This would provide an escape route from the dune walk as the gravel beach to the north is covered by high tides.

Although the Coastal Scenic Resources and Public Access Plan proposed a nature trail below the bluff, access down from the viewing platforms over the large pond area should **not** be provided to protect the pond habitat from human intrusion.

Two more wetland access points should be provided at the viewing platform by the Potato Patch and the creek bed just to the south. Access from the potential viewing platform at Pt. Campbell may be feasible.

MANAGEMENT PLAN

A. Recommendation

The Pt. Campbell - Pt. Woronzof wetlands should be made part of the Potter Point State Game Refuge.

B. Objectives

To protect, maintain and enhance the Pt. Campbell - Pt. Woronzof wetlands and wildlife populations in concert with other components of the ecosystem and thereby assure their capability of providing sustained opportunities for public recreational uses while balancing the need for human use in a planned, environmentally acceptable manner.

C. Policies

1. **Consider the Ecological Relationships and the Human Benefits Derived from Wildlife on the Refuge in the Formulation and Implementation of Mangement Progress.**

   This area suppports many plant and animal species which are dependent upon each other and on nonliving components of their environment for their life requirements. These interrelationships are complex and incompletely understood.

   All human use of the area has some effect on the biotic components of the wetland. However, to a considerable degree the biotic components are dynamic and adaptable to change. This inherent resiliency allows for the temporary alterations of ecosystems without causing permanent changes. Management of the wetland should be designed to minimize disruptive effects on its ecosystems while providing for optimum human benefits from all resources.

2. **Maintain and Encourage Scenic/Educational Uses of Refuge Wildlife Resources.**

   Viewing and photography of waterfowl and other marsh birds, and mammals, together with educational instruction, are the primary uses of the wetland. Opportunites to participate in these activities exist throughout the wetland.

   Enhancement of wildlife viewing opportunities will be undertaken on a limited scale so as not to compromise the natural qualities of the marsh or alter the diversity of habitat types. Enchancement projects may include bike path pullouts, viewing platforms, pathways and instructional signs.

   All activities which affect wildlife and their habitats should be regulated. Recreational activities which are not wildlife oriented, may be permitted so long as they are not detrimental to habitat, do not adversely affect wildlife, or do not conflict with the primary uses of the wetland.

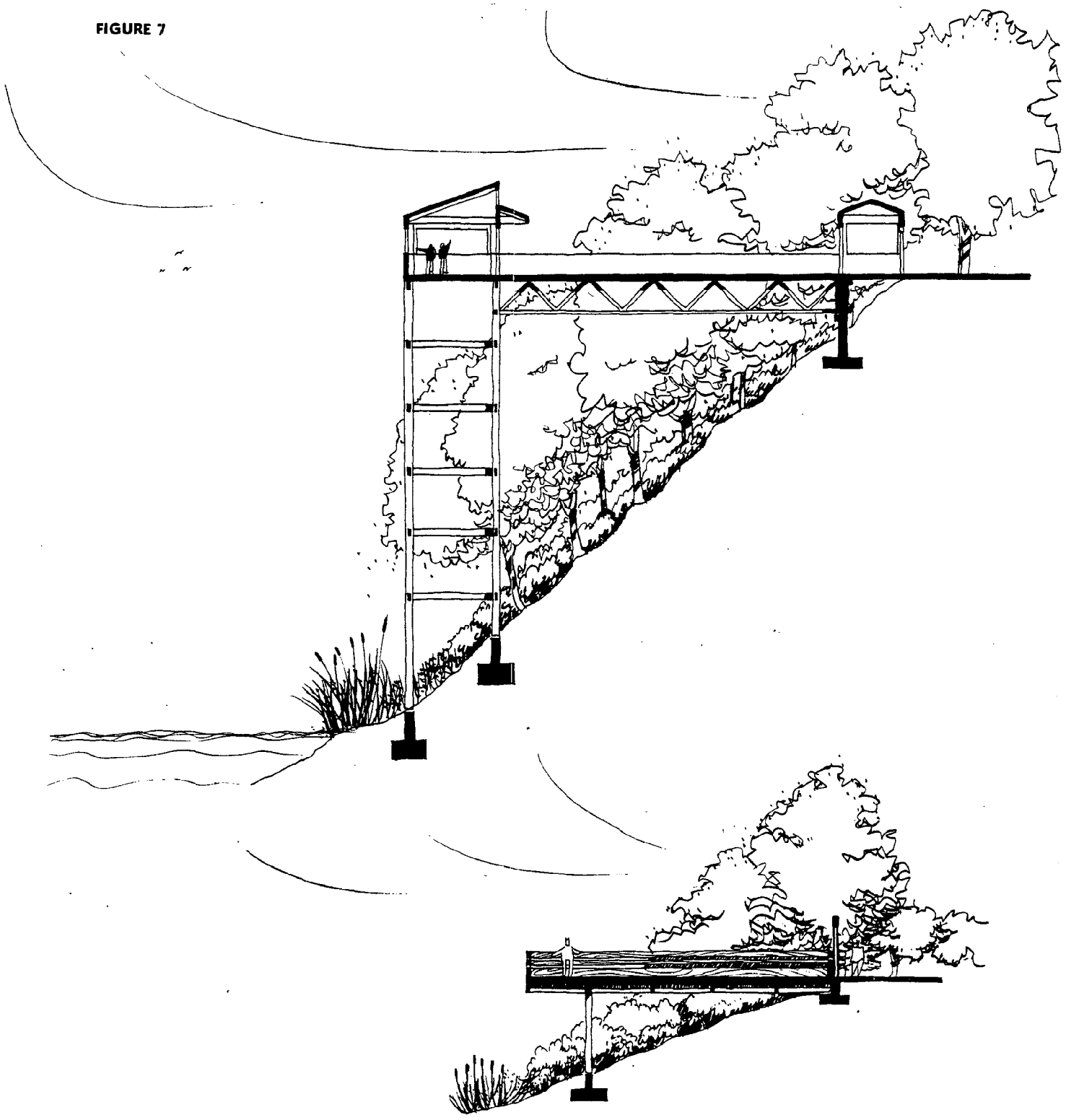
3. **Hunting should be Regulated by Season, Days, and Hours on the Pt. Campbell - Pt. Woronzof Wetlands.**

   The Pt. Campbell - Pt. Woronzof wetlands area is smaller than the adjacent Potter Marsh Refuge and when it becomes developed with public access facilities, hunting should be regulated. Trapping should be prohibited throughout the wetland.

4. **Maintain Inventory and Assessment Programs which Provides Data Necessary to Manage Wildlife Population, their Habitat and Various Public Uses.**

   Various wildlife population surveys have been periodically conducted on the wetland. These include estimates of goose and duck breeding pairs and brood production sur-

FIGURE 7



PT. CAMPBELL - PT. WORONZOF MASTER PLAN

VIEWPOINT SECTIONS

0 5 10 20 40 FEET

veys. These surveys provide valuable information on the abundance and distribution of some wildlife on the wetland, and are useful in identifying those areas which warrant special atention when human activities are considered in wildlife management. Survey and inventory activities will likely increase as human use puts more demand on the resources of the coastal marsh. Hunting pressure and the harvest level of various species will also require increased scrutiny, as will habitat assessment programs.

5. **Maintain Informed Public Involvement in Management Issues and Land Use.**

   Governmental, commercial or private interests may advocate alternative management strategies or land uses which could significantly alter the benefits derived from the wetland. In all cases, the public should be advised of potential conflicts between wildlife and recreational uses, versus other proposed uses of the wetland. This can be best accomplished through public review of management plans, during the annual regulatory process, and by holding public meetings on major wetland oriented issues. With these actions divergent public interests will be represented in mangement decisions.

6. **Regulate Use of Motorized Vehicles to Protect Wildlife and their Habitats.**

   Use of motorized vehicles should be prohibited. However, permits may be issued to persons wishing to use various motorized vehicles, such as motorized hang gliders and hovercraft, for limited activity during the winter months, provided these vehicles utilize ice or snow covered areas only.

7. **The area identified on the Master Plan Map should be placed in a Preservation Classification.**

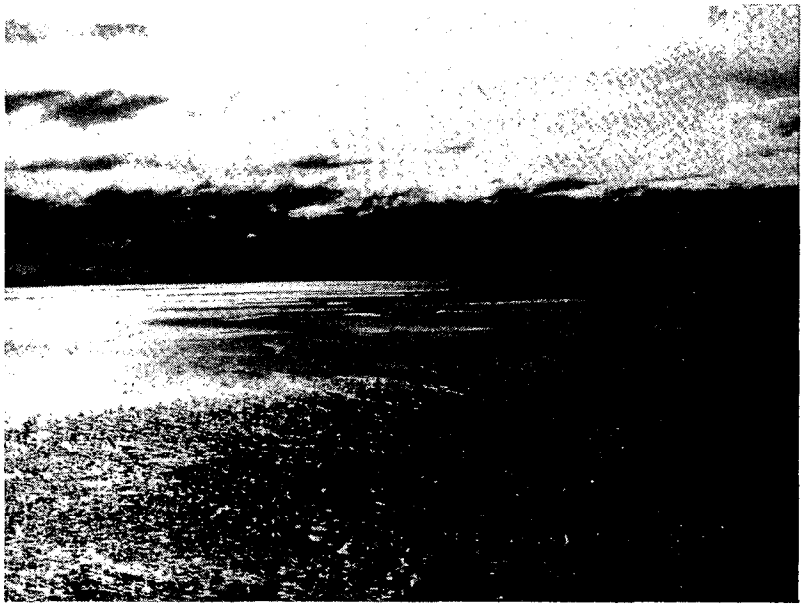
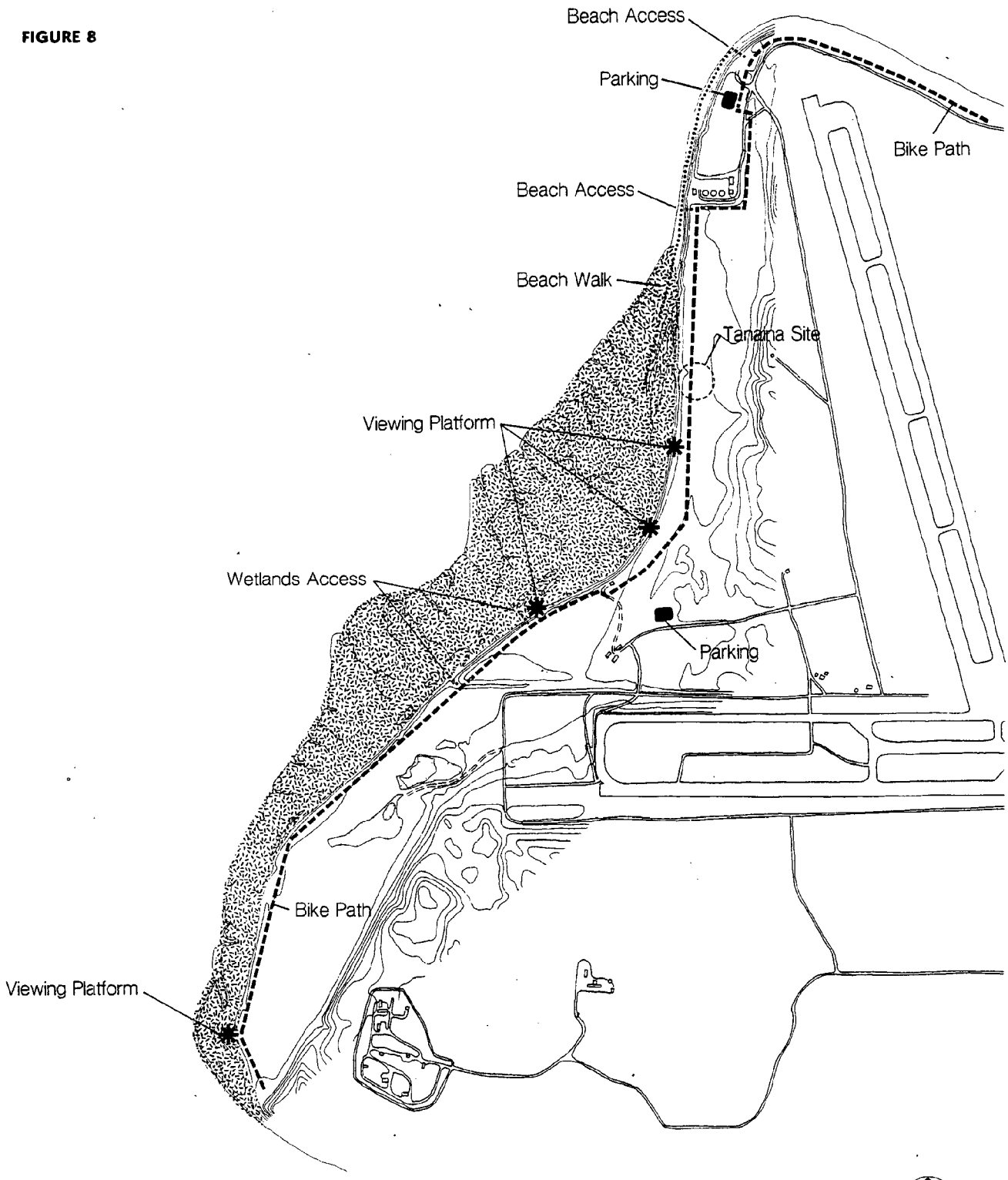


FIGURE 8



PT. CAMPBELL - PT. WORONZOF MASTER PLAN