# Anchorage Coastal Management Plan

August
2007

Municipality of Anchorage
Mark Begich
Mayor

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# ANCHORAGE COASTAL MANAGEMENT PLAN

July 2007

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Municipality of Anchorage
Mark Begich, Mayor

Prepared by
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for the
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Physical Planning Division

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# 1.0 CHAPTER ONE INTRODUCTION

The original Municipality of Anchorage (MOA) Coastal Management Plan (CMP) was approved locally in 1979. It was forwarded to and then adopted by the State in the spring of 1980, followed by Assembly adoption in January 1981. The CMP was subsequently amended in June 1987. The CMP is a policy document that defines issues of local concern and guides the development needs of residents, businesses, and landowners within the Anchorage coastal zone boundary.

Changes in Alaska state law, enacted in 2004, required that the MOA amend its CMP. This 2007 Plan Amendment has been prepared to comply with the Alaska Coastal Management Act (ACMA), as amended by the Alaska State Legislature in 2003, and the Alaska Coastal Management Program (ACMP) regulations adopted in 2004. The CMP includes one designation based on historic coastal access and recreation patterns, plans, and scientific evidence that link natural features and geography with important habitat and coastal waters.

## 1.1 PLAN ORGANIZATION

This CMP revision includes the following chapters. Descriptions for abbreviations and acronyms used in this document are described in Appendix C-Abbreviations and Acronyms. The terms used in the CMP are defined in Appendix D-Definitions.

- Chapter One. Introduction and Organization of the CMP. This chapter introduces the plan and describes how it is organized.

- Chapter Two. MOA Coastal Zone Boundary and Designation. This includes a description of the MOA coastal zone boundary and the Recreation Use Area Designation.
- Chapter Three. Issues of Local Concern, Goals, and Objectives. This is a description of the issues of local concern, goals for balanced management of coastal resources, and objectives for how the management is to occur. This chapter is to be used to support enforceable policies applicable to the land and water uses subject to the MOA CMP.
- Chapter Four. Resource Inventory and Analysis. This is a description of Anchorage's coastal resources and an analysis of the impacts from uses and activities. Results from the Anchorage Sensitivity Index Decision Support System (ASIDESS) model of the *Anchorage Coastal Atlas* form the basis for the resource analysis and the Recreation Use Area Designation.
- Chapter Five. Enforceable Policies Applicable within the Designated Areas. This chapter describes the enforceable policies that are to be used to implement the goals and objectives, and provides standards for uses and activities within the designated area.
- Chapter Six. Implementation. This is a description of the land and water uses and activities subject to the MOA CMP and how the plan is implemented by local, state, and federal agencies.

- Appendices. The following appendices are provided:

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- Maps depicting the coastal zone boundary and the Recreation Use Designation:

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# 2.0 CHAPTER TWO BOUNDARY AND DESIGNATION

## 2.1 ANCHORAGE COASTAL ZONE BOUNDARY

No official changes to the Anchorage coastal zone boundary, as of December 22, 2003, as described by the Alaska Department of Natural Resources (ADNR), are proposed.

The coastal zone boundary is described by ADNR as follows:

> The inland coastal boundary of the Municipality of Anchorage along with the coast between the Matanuska-Susitna Borough and Potter Creek, includes all lands and waters within: (1) a zone extending 1,320 feet inland, measured horizontally, from the extent of the 100-year coastal flood; (2) the 100-year floodplain or 200 feet from the center (whichever is greater) of each river and stream intersected by the 1,320-foot zone up to the 1,000-foot elevation contour; and (3) other areas as delineated on the Coastal Zone Boundaries of Alaska, ACMP, June 1988 (Map #94). The inland boundary in watersheds of the upper Knik River and south of Potter Creek includes all lands and waters within the 1,000-foot elevation contour. Reference to 1:25,000 or 1:63,360 USGS topographic maps, Federal Emergency Management Agency (FEMA) Flood Insurance Rate maps (FIRM), or the Anchorage Coastal management Program, may be necessary to determine if the above criteria apply and whether the use or activity lie within the coastal zone (Coastal Zone Boundaries of Alaska, Alaska Coastal Zone Management Program, 1988).

### 2.1.1 Boundary Clarification

The original coastal zone boundary followed the 100-year floodplain of known and mapped streams in a parallel line to the 1,320-foot contour. The original coastal zone boundary creek delineations were made following U.S. Geological Survey (USGS) maps, and other sources, that depicted official stream channels. Since the original boundary was mapped, there have been a number of improvements in delineation of MOA streams mapping, augmented by field verifications and Global Positioning System (GPS) instrumentation. Several new stream sections, tributaries, and channels have been subsequently delineated and the Plan revision boundary reflects these technical adjustments.

Extensive development along, and channelization of, numerous creek corridors has occurred since the original mapping. As development has occurred, the MOA has also updated its mapping, parcel, and environmental features databases, which has resulted in a number of minor technical adjustments to the coastal zone boundary. The new CMP maps reflect these minor technical adjustments. The adjustments are linear and represent additions or extensions to the stream channels as mapped in the original plan.

### 2.1.2 Designation

The MOA has designated *Kincaid Park*, the *Tony Knowles Coastal Trail*, and the *Chester Creek Trail* as Recreation Use Areas. According to the Alaska Administrative Code (AAC), 11 AAC 114.250, the following subject areas can be established as "designated areas": important habitat, recreational use, tourism use, natural hazards, major energy facilities, commercial fishing and seafood processing facilities, and history and archaeology.

There are resources within the designation that have important physical, biological, and cultural attributes upon which existing recreation uses and potential recreation uses depend.

Maps A, B, and C delineate the coastal zone boundary and the designated areas.

## 2.2 FEDERAL LANDS BOUNDARY DEFINITION

Excluded from Alaska's coastal zone boundaries are "those lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the federal government, its officers or agents…." (15 Code of Federal Regulations [CFR] 923.33)

In accordance with federal law, the MOA coastal zone excludes all federal lands and waters within its boundaries. However, the federal government is not exempt from the ACMP or the MOA CMP. Federal law requires "federal agencies, whenever legally permissible, to consider state management programs as supplemental requirements to be adhered to in addition to existing agency mandates" per 15 CFR 930.32(a).

All uses and activities on excluded federal lands that directly affect the coastal area must be consistent to the maximum extent practical with the ACMP and are subject to the consistency provisions of Section 307 of the Coastal Zone Management Act of 1972, as amended.

## 2.3 SEAWARD COASTAL ZONE BOUNDARY DEFINITION

The statewide seaward coastal zone boundary is the "outer limit of the United States territorial sea" (15 CFR 923.32), which is the "three geographic mile line" (43 CFR 3301.1). The depicted statewide seaward coastal zone boundary was extracted from the Outer Continental Shelf Protraction Diagram map series (Bureau of Land Management).

## 2.4 AREAS MERITING SPECIAL ATTENTION

The original MOA CMP included ten Areas Meriting Special Attention (AMSAs). The resource data and values for each AMSA are incorporated into the Resource Inventory and Analysis, Chapter Five. The locations of the AMSAs are depicted on the MOA's coastal resource maps.

(1) Andesitic Dike at Potter Marsh on the Old Seward Highway
(2) Bird Creek Regional Park
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(4) Fish Creek Estuary
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(8) Point Woronzof Bluffs
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(10) Seward Highway and Turnagain Arm scenic corridor

# 3.0 CHAPTER THREE
# ISSUES, GOALS, AND OBJECTIVES

## 3.1 INTRODUCTION

Uses and activities that may have the potential to affect the physical, biological, or cultural use of coastal resources upon which recreational uses depend, and that have the potential to have a direct and significant impact on habitats, are described below as issues of local concern. The issues are followed by a set of goals and objectives. The goals describe long-range purpose and intent and the objectives are more specific and shorter-term, measurable statements of intent.

Anchorage is Alaska's largest city and is a major gateway to recreational opportunities in the southcentral region as well as statewide. Public access to coastal resources, for both seasonal and year-round use, is critical to the Anchorage quality of life, local recreation, and the tourism economy. It has been an essential goal and element of the MOA CMP since the 1970s. The local recreation and tourism economy relies heavily on the natural features found in Anchorage's coastal zone, including the diverse fish and wildlife resources, scenic views, open spaces, natural resource areas, and clean air and water.

Acres of greenbelts and more than 120 miles of trails, provide access to the coast through the many parks and natural areas. The fish and wildlife resources of the Anchorage coastal zone draw upon the diverse habitat of the region, and these resources are important to local residents and visitors. There are areas of particular importance or sensitivity, such as fish spawning and rearing habitat, and bird habitat, where fish and wildlife use should be protected in a reasonable manner.

There is community-wide commitment to making Anchorage a safe and healthy place to live, with a high quality of life, a thriving, sustainable, broad-based economy that is built in harmony with the natural resources of the region and supported by efficient infrastructure.

This commitment is documented as a matter of local concern in a number of locally adopted plans, including: *Anchorage 2020,* the *2006 Anchorage Bowl Park, Natural Resource, and Recreation Facility Plan,* the *1997 Anchorage Areawide Trails Plan*, the *2005 Draft Long Range Transportation Plan, the 1990 Utility Corridor Plan,* the *Girdwood Area Plan,* and the *Chugiak-Eagle River Comprehensive Plan*.

For example, according to the *APNRF*:

> "Since the 1920s Anchorage residents have planned, protected and treasured parks, natural areas, and places of recreation and conservation."

In addition, the Design and Environment section of *Anchorage 2020* is directly implemented through the MOA CMP.

### 3.1.1 Issues of Local Concern

(1) The natural features of the coastal zone are an important asset for attracting and retaining businesses like the growing information technology sectors. This business sector is very mobile and has a great degree of flexibility when locating new businesses. Quality of life in the community in which they locate is very important.

(2) Natural resource areas and open spaces are valued by Anchorage residents for fish and wildlife, and plant habitats. The corresponding ecological functions and values of these habitats contribute significantly to create a livable, dynamic, and economically viable city.

(3) The connection between the urban setting and the natural environment are important to residents, businesses, and visitors. This has been documented in a number of local plans.

(4) There is a natural link between development activities in upland habitats and the effect these uses and activities can potentially have on riparian habitat and important wetlands located downstream.

(5) Important habitat may be negatively and cumulatively impacted by poor-quality development and construction practices.

(6) Encroachment into sensitive wetlands, into the upper reaches of the watersheds, improper development within floodplains, and inadequate construction setbacks from shorelines and stream banks can pose direct and significant cumulative and secondary impacts to the water quality of the marine waters, streams and lakes thereby negatively impacting habitats and recreation areas.

(7) There are a number of creeks and streams of local concern that are valued for their recreation potential and important biological productivity. These include: Campbell Creek, Little Campbell Creek, Chester Creek, Fish Creek, Furrow Creek, Potter Creek/Potter Marsh, Rabbit Creek, Little Rabbit Creek, Ship Creek, Eagle River, and Glacier, California, Virgin, Peters, Fire, Carol, and Meadow Creeks.

(8) All of the freshwater creeks and streams within the MOA coastal zone flow into the coastal waters of Cook Inlet.

(9) Anchorage has experienced local water quality problems due, in part, to historical connections between non-point source runoff from construction sites and septic systems and the stream systems.

(10) Natural colonization and importation of non-native and invasive species are beginning to appear and proliferate in the MOA. There are species with the potential to out-compete native species.

(11) There are uses and activities that are economically or physically dependent on a waterfront location. These uses and activities must be given priority. These uses and activities are located primarily in the lower Ship Creek Valley and within the Port of Anchorage.

(12) Of mid-sized cities, Anchorage is uniquely endowed with a spectacular and dramatic coastline to which public access to its recreation resources, including the scenic resources, is still possible.

(13) Adequate, safe, and maintained access to the coastal land and water resources, upon which a number of activities and uses depend, is essential to sustaining and enhancing future economic growth and development.

(14) Adequate, safe, and maintained access to coastal land and water resources is an important component of the quality of life valued by residents, businesses, and visitors.

(15) There have been a number of public-initiated efforts to acquire and improve access to coastal resources such as the Fish Creek Estuary, Lake Otis, the Eagle River and Rabbit Creek Greenbelt trails that demonstrate local concern and commitment to both the recreational values and habitat values of resources in the MOA coastal zone.

(16) Public access to streams, lakes, and the coast must be retained as land is subdivided or developed.

(17) There is a need to address random and/or informal or unorganized public access via easements or undeveloped trails through, or adjacent to, coastal resources.

(18) There is competition for the few, and quickly declining, remaining undeveloped or underdeveloped lands, which results in an increased pressure on marginally suitable and unsuitable lands.

(19) Marginally suitable and unsuitable lands often include those areas with wetlands, intertidal and mudflat conditions, and seismic and avalanche hazard areas.

(20) The Anchorage Coastal Wildlife Refuge (ACWR) is an important natural resource area and local natural feature of the Anchorage coastal zone. A large representation of wildlife species can be found in the ACWR and adjacent coastal sections, and in similar environments for both Chugiak-Eagle River, and Turnagain Arm, providing both opportunities for scientific study and education, as well as tourism.

(21) Potter Marsh is a well-known section of the ACWR and is popular for bird viewing. Thousands of visitors stop to view wildlife at Potter Marsh and other accessible coastal sites, including Ship Creek, adjacent sections off the Tony Knowles Coastal Trail, and sections of Turnagain Arm.

(22) Sport and resident fish species, essential to residents and visitors, rely upon continued stewardship of Anchorage's urban streams and lakes.

(23) The half million-acre Chugach State Park, bordering the Anchorage Bowl, Eagle River, and Girdwood valley, provides hiking, climbing, mountain biking, skiing, snowmobiling, horseback riding, and wildlife viewing opportunities, but access opportunities need to be expanded and improved and wildlife corridors need to be maintained as hillside-to-coast connections.

(24) Salmon rearing and spawning habitats are very susceptible to the addition of sediments to stream bottoms. The salmon streams within Anchorage's coastal zone may be vulnerable to cumulative impacts that can result from individually minor but collectively significant actions taking place over time. Many uses by themselves do not represent an intolerable change in the biologically productive streams and lakes, but when considered cumulatively could have an adverse effect to the local fisheries. Similar cumulative impact concerns exist due to the long-term filling of freshwater wetlands.

(25) Alaska has experienced a rapid warming since the 1960s. Annual average temperatures have warmed up to 1.8°F (1°C) per decade over the last three decades, and winter warming has been as high as 3°F (2°C) per decade. This warming trend may adversely affect fish and wildlife habitats and biological productivity. The condition of waterways, watersheds, and coastal ecosystems affect the availability of clean water for not only habitats but for human consumption.

### 3.1.2 Goals and Objectives

**Goal 1** **To encourage the protection of important fish and wildlife habitats, high value wetlands, and riparian zones.**

Objective A Identify and designate important habitat areas in the MOA coastal zone.

**Goal 2** **To encourage development and construction practices that minimize adverse impacts to the recreation areas and habitats within the MOA coastal zone.**

Objective A Develop enforceable policies for those activities that have the potential to alter the hydrologic conditions, resulting in adverse impacts to the recreation areas.

Objective B Develop enforceable policies that address the cumulative impacts to fish and wildlife habitat that can result from the creation of additional impervious surfaces.

**Goal 3** **To give high priority to, and preserve space for, water-dependent uses and activities requiring direct access to water.**

Objective A Develop enforceable policies where priority of use is given to water-dependent and water-related uses over other uses.

Objective B Develop enforceable policies for the siting and design of uses and activities located on or adjacent to streams, lakes, and marine waters.

**Goal 4** **To promote and maintain access opportunities to coastal areas for purposes of recreation, tourism, coastal development, and transportation and utilities.**

Objective A Establish siting and design criteria for the location of uses or activities immediately adjacent to marine areas, streams, and lakes, so as not to preclude future public access to the resource.

Objective B Promote pedestrian-oriented waterfront activities, consistent with public safety and security.

Objective C Work with the State of Alaska, MOA, and landowners to develop access improvements at the Port and Ship Creek.

**Goal 5** **To enhance and maintain public access to the coastal resources for recreation purposes and enjoyment of habitat resources.**

Objective A To plan for and retain access routes and points, including natural open spaces, that link neighborhoods, existing and planned greenbelts and parks, existing and planned trails, and open spaces to and within coastal waters, streams, and lakes.

**Goal 6** **To encourage full participation by the citizenry, landowners, MOA departments, and state and federal agencies, in coastal land and water resource use and development decisions within the MOA coastal zone.**

Objective A Develop a coastal management program that addresses issues of local concern.

Objective B Coordinate the goals and objectives of the coastal management program with other land use, facility, and development plans of the MOA.

Objective C Merge policies in this plan amendment with MOA permit actions and/or Title 21 to ensure consistent plan implementation.

# 4.0 CHAPTER FOUR
# RESOURCE INVENTORY AND ANALYSIS

This chapter includes a description of the coastal resources within the MOA coastal zone boundary and includes subject uses and activities. An analysis of impacts from uses and activities under 11 AAC 114.230 and 11 AAC 114.250 follows the inventory.

## 4.1 RESOURCE INVENTORY

### 4.1.1 Introduction

The MOA has prepared and adopted a number of local plans, based on extensive research and public involvement, that document historic use of the natural setting for recreation and document the link between the natural environment – streams, lakes, soils, water quality, air quality, fish and wildlife – and the quality of life important to residents, businesses, and visitors. Information from these plans and documents has been incorporated into the CMP resource inventory and analysis. The plans referenced include:

- *Anchorage 2020/Anchorage Bowl Comprehensive Plan* (*Anchorage 2020*)
- *Anchorage Bowl Park, Natural Resource, and Recreation Facility Plan* (APNRF)
- *Anchorage Areawide Trails Plan*
- *Anchorage Long Range Transportation Plan* (LRTP)
- *Utility Corridor Plan* (1990)
- *Port of Anchorage Master Plan*
- *Anchorage Wetlands Management Plan*
- *Patterns of the Past*
- *Girdwood Area Plan*
- *Chugiak-Eagle River Comprehensive Plan*
- *Original Anchorage Coastal Management Plan*

There are a number of guiding principles in these plans that apply directly to the MOA CMP. These principles are:

- ✓ The community vision for Anchorage is "a safe and healthy place to live where daily life is enriched by a wealth of year-round recreational and educational opportunities".
- ✓ Among the most important attributes of Anchorage are: the natural beauty and setting, trails/parks/greenbelts/open space, the outdoor and recreational opportunities, and the accessibility to the wilderness (*Anchorage 2020,* Community Survey).
- ✓ Parks and natural resource areas define neighborhoods, provide connections to the environment, and create a sense of place for residents. Recreation is an essential element to a balanced community.
- ✓ There is a network of natural resource areas throughout Anchorage that preserve and enhance scenic vistas, fish, wildlife, and plant habitats and their ecological functions and values.
- ✓ Anchorage residents value and care for public spaces and natural resources.

### 4.1.2 Physical Setting

Anchorage is located in southcentral Alaska at the head of Cook Inlet. The terrain is varied and includes rugged mountainous areas, many streams and small lakes, numerous open spaces, wetlands, and wooded foothills. Anchorage has the most miles of coastline of any city in North America. Fourteen of the 46 permanent streams found in the city flow through the Anchorage Bowl to the coastal waters of Cook Inlet. Native vegetation consists of black spruce, white spruce, mountain hemlock, paper birch, balsam poplar, black cottonwood, willow, and alder.

The Anchorage Bowl occupies approximately 100 square miles, and is bounded by Chugach State Park, Turnagain and Knik Arm, and by Elmendorf Air Force Base and Fort Richardson Military Reservation (*Anchorage 2020*).

The Chugiak-Eagle River area is located along the upper portion of Knik Arm, midway between the Anchorage Bowl and the Palmer-Wasilla area. Most of this community is situated on narrow lowlands, approximately 65 square miles in area. The lowlands consist of forested uneven terrain bisected by four stream systems – Eklutna River, Peters Creek, Fire Creek, and Eagle River – which drain from the mountains to the inlet. The Fort Richardson Military Reservation separates the Anchorage Bowl from Chugiak-Eagle River. The community is bounded by Knik Arm and Cook Inlet to the north and west. To the east lie the Chugach Mountains.

There are five smaller communities along Turnagain Arm including Girdwood. Girdwood lies near the head of Turnagain Arm, about 42 miles southeast of Anchorage. Girdwood valley formed from glaciation and is broad, flat, and relatively short in length. The valley rises sharply to mountains peaks close to 6,000 feet. The area's landforms have played a primary role in shaping the land use patterns of today.

The average July temperature ranges from 58 degrees Fahrenheit (°F) to 65°F, with record high temperatures of 85°F. The average January temperature ranges from 6° to 13°F, with record low temperature of –45°F. Average rainfall is 15 inches and average snowfall is 69 inches (*Anchorage 2020*).

Alaska has experienced a rapid warming since the 1960s. Annual average temperatures have warmed up to 1.8?F (1°C) per decade over the last three decades, and winter warming has been as high as 3°F (2°C) per decade. According to a study of 67 glaciers, between the mid-1950s and mid-1990s the glaciers thinned by an average of about 1.6 feet (0.5 m) per year. Repeat measurements on 28 of those glaciers show that from the mid-1990s to 2000-2001 the rate of thinning had increased to nearly 6 feet (1.8 m) per year (Arendt, A.A., K.A. Echelmeyer, W.D. Harrison, C.S. Lingle, V.B. Valentine, 2002).

Within the MOA there are over 400 kilometers of hiking, walking, biking, and skiing trails; five species of salmon and fifty-two species of mammals, including wolf, lynx, moose, and bear; some 215 bird species, including nesting loons; and mountain views in all directions, including Mt. McKinley.

The unique natural features of Anchorage include its parks, natural open spaces, greenbelts, trails, viewsheds, and year-round access to thousand of acres of wilderness. These features, in turn, increase property values, provide a balance between urban development and nature, and contribute to the overall health of the community, both socially and economically.

### 4.1.3 Socioeconomic Setting

#### *Population*

According to the United States (U.S.) Census, American Community Survey for 2003, the population of Anchorage was 264,134. Table 4.2.1 below describes some general population characteristics of Anchorage, as compared to the U.S. as a whole.

**Table 4-1 General Population Characteristics of Anchorage**

| | 2003 Estimate for Anchorage | Percent of Population | U.S. |
|---|---|---|---|
| Total Population | 264,134 | 100.0 | 100.0% |
| Male | 132,039 | 50.0 | 48.9% |
| Female | 132,095 | 50.0 | 51.1% |
| Median Age (years) | 33.2 | (X) | 36.0 |
| Average Household Size | 2.64 | (X) | 2.6 |

Source: U.S. Census, 2003 American Community Survey Data Profile

U.S. = United States

According to *Anchorage 2020*, Anchorage's population has tripled since statehood. The population is estimated to reach between 278,919 and 305,519 by 2020. Anchorage residents are young in comparison to the national average. Trends indicate that the number of school-age children will continue to increase and the senior adult population is expected to grow rapidly (*Anchorage 2020*).

The parks, greenbelts, and trail systems already existing will be challenged to keep up with projected population growth and community expansion.

#### *Economy*

Anchorage is Alaska's primary transportation, communications, trade, service, and finance center and accounts for 47 percent of the State's employment. According to *Anchorage 2020*, the city's prosperity is tied to national and international markets for oil, gas, minerals, timber, and seafood. More than 70 percent of the State's legal, business, engineering, and management service employment is based in Anchorage. Government plays an important role with 8,300 state employees, compared to 5,300 in Juneau, the State's capital (A*nchorage 2020*). Anchorage jobs generally pay more than jobs elsewhere in Alaska. In 2003, 56.7 percent of the total wages earned from private enterprises in the State that year were from jobs in Anchorage (Alaska Department of Labor, 2004). See Table 4.2 for non-farm wage and salary by employment sector for Anchorage and the State.

**Table 4-2 Wage and Salary Employment by Sector Anchorage and Alaska 2003**

| Sector | State of Alaska | Municipality of Anchorage |
|---|---|---|
| Total Non-farm Wage & Salary | 299,517 | 144,642 |
| Goods-producing | 37,417 | 12,692 |
| Natural Resources & Mining | 10,058 | 2,500 |
| Construction | 16,242 | 8,283 |
| Manufacturing | 11,142 | 1,900 |
| Service-providing | 262,100 | 131,967 |
| Trade, Transportation, Utilities | 61,050 | 32,708 |
| Financial Activities | 13,875 | 8,450 |
| Professional & Business Services | 23,758 | 17,242 |
| Educational & Health Services | 31,975 | 17,242 |
| Leisure & Hospitality | 29,650 | 15,017 |
| Government | 82,150 | 30,525 |
| Other Services | 12,575 | 6,142 |

Source: 2005 Port of Anchorage Marine Terminal Redevelopment Environmental Assessment

Anchorage's economic assets include: a well-educated and skilled work force; an efficient air and marine transportation system; and a modern communications, and low-cost utility system in place with capacity for growth. Employers, residents, and visitors value Anchorage for its high quality of life. Attributes such as modern infrastructure, excellent health and educational services, competitive wages, low taxes, excellent environmental quality, natural setting, and access to the outdoors make Anchorage a good place to reside and do business.

## *Recreation, the Economy, and Quality of Life*

According to the *2006 Anchorage Bowl Park, Natural Resource, and Recreation Facility Plan* (*APNRF*), residents and visitors place a high premium on quality of the environment in Anchorage. Resources such as wetlands, streams, lakes, and forests, including the greenbelts in which these resources can be found, are considered some of the most important resources in Anchorage.

While recreation and tourism are not considered "industries" in the classical sense, they play an important part in a variety of economic sectors. According to the *APNRF*, of the estimated 1.5 million visitors traveling to Alaska in the summer 2003, and about 60 percent traveled to Anchorage. This is an annual increase of about 5 percent annually since 1990. There are a number of economic impacts of the tourism industry on Anchorage. These include the direct expenditures on the purchase of goods and services, such as hotel rooms and ground transportation, taxes and fees, and payroll.

There are direct positive impacts from direct employment by recreation- and tourism-related businesses, such as cruise companies and support businesses. There are direct out-of-pocket expenditures from tourists that are not part of tour packages. There are also indirect positive impacts from air transportation to and from Anchorage to other places within Alaska, and indirect impacts of earnings and employment related to this travel. According to the Alaska Travel Industry Association,

the tourism industry has a 78 percent hire rate. This is the highest of all key Alaska industries. Tourism is also Alaska's second largest private-sector employer, accounting for one in eight private-sector jobs.

Chugiak-Eagle River, located north of the Anchorage Bowl, is surrounded by natural areas and open space, including Chugach State Park. There are many opportunities for recreation and tourism development to complement the growing visitor industry in Chugiak-Eagle River and in the State of Alaska. The area has experienced very rapid growth over the past twenty years with the population almost doubling between 1980 and 1990, from 12,858 to 25,324 (Chugiak-Eagle River Chamber of Commerce, 2005). The 2000 population was 29,915, which was an 18 percent growth rate in the past decade. According to the Chugiak-Eagle River Chamber of Commerce website, the community supports economic development and economic diversity that complements the community oriented nature of this area. The business sector is largely service/retail businesses.

Girdwood, located south of the Anchorage Bowl, is considered a developing resort community, dominated by the recreation and tourism industry (*Girdwood Area Plan, 1995*). However, one-third of the work force is employed outside of the community. The current population is estimated at 1,500 (*Girdwood Commercial Areas and Transportation Master Plan, 2001*). Girdwood is a prime visitor spot with several million visitors traveling by bus and rail to and from the Anchorage International Airport, the cruise ship docks in Whittier and Seward to the south, and Denali National Park to the north. The community strives to promote continued growth, year-round recreational opportunities for residents and visitors, preserve the natural open spaces, and ensure that physical development blends with the natural environment.

### 4.1.4 Land Use

According to *Anchorage 2020,* most of the suitable land in the Anchorage Bowl is already developed, and the remaining vacant land faces some level of development constraints. The Planning Department (PD) conducted a municipal-wide land use inventory, with field surveys and mapping, in 2003. Inventory results indicated that three-quarters or 50,050 acres, of the 64,400 acres, in the Bowl were already in use. A land use map has been developed that presents a recent ground-truthed mapping of existing land uses throughout the MOA. Table 4.3 depicts the inventory results for occupied lands.

**Table 4-3 Land Use Inventory Results, Anchorage Bowl 1998**

| Land Use (occupied lands) | Acreage | Percent of Total Developed Land |
|---|---|---|
| Residential | 17,595 | 35% |
| Commercial | 2,631 | 5% |
| Industrial | 2,559 | 5% |
| Parks and Open Space | 10,823 | 22% |
| Rights-of-way | 9,454 | 19% |
| Transportation | 3,224 | 6% |
| Institutional | 3,773 | 8% |
| **Total** | **50,059** | **100%** |

Source: Anchorage 2020 Comprehensive Plan, 1998

Land use in Girdwood consists primarily of recreation, natural areas/open space, residences, commercial uses, light industrial uses, and public lands. Recreation uses include alpine and cross-country skiing, golfing, camping, and trails. There is an extensive natural areas/reserve and open space system. Residential use is primarily single-family and multi-family. Commercial uses include highway-oriented commercial development and commercial development at the Girdwood Townsite and commercial recreation uses along the Alyeska Highway, at the townsite, and at the resort area. Industrial uses are primarily mining and storage and repair businesses. Chugiak-Eagle River has grown up as a primarily residential community, with a growing commercial center, and some light industrial uses.

## *Vacant Lands*

According to the inventory conducted for *Anchorage 2020*, only 22 percent of the total land base, or about 14,300 acres, is vacant or undeveloped. This acreage was assessed to determine if site conditions, such as steep slopes, wetlands, poor soils, or seismic or other natural hazards, limited development potential. According to the inventory, about 6,200 acres were found to be fully suitable, while 5,000 acres were limited by one constraint and were considered marginally suitable for development. About 3,100 acres were limited by two or more constraints and were considered unsuitable for development. This means about 11,200 acres, or one-sixth of the total land area in the Bowl, is vacant and suitable, or marginally suitable, for future community expansion (*Anchorage 2020*). In addition, some parcels in use are developed well below their allowable intensity and are considered "under-developed."

More intense development and infill, along with redevelopment and reuse of parcels, may result in a net increase in the available acreage for development. However, these processes of infill and redevelopment of parcels may not entirely remove the pressure for development on marginally suitable lands.

## *Historic and Cultural Features*

An extensive inventory of historic and cultural features of Anchorage was completed in 1986. The report is called *Patterns of the Past: An Inventory of Anchorage's Historic Resources*. The inventory was compiled as a basic source of information about Native and prehistory resources, buildings, transportation facilities, mining, aviation, the military, and other resources that are visible reminders of

Anchorage's past. This detailed report provides significant documentation of historic and cultural features within the MOA coastal zone. These documented cultural resources comprise the cultural attributes upon which existing recreation and future recreation use depend.

### 4.1.5 Transportation Routes and Facilities

The need for a balanced, multi-modal transportation system is identified in a number of Anchorage plans, including the *Anchorage Long-Range Transportation Plan* (LRTP 2025) and *Anchorage 2020.* The vision statement in *Anchorage 2020* states: "balances growth with the retention of the city's natural features and quality of life." One of the goals in the LRTP is to "design and maintain a transportation system that respects the integrity of Anchorage's natural and built environment, and protects Anchorage's scenic vistas." These goals are complementary to the MOA CMP, and supported by the enforceable policies in Chapter Five. The following section describes the Anchorage transportation system as it relates to the MOA CMP.

#### *Roads*

According to *Anchorage 2020*, roads are a major land use. About 9,300 acres or almost 20 percent of developed land in the Anchorage Bowl is devoted to road rights-of-way. Traffic congestion and the need to coordinate transportation improvements with land use have been identified as key planning issues in Anchorage. Nineteen of 30 intersections evaluated in November 1999, operated at poor levels of service during that time, versus 12 during the morning peak and eight during the midday off-peak periods. Travel times are taking longer and average travel speeds are slower during these times of day. The most congested corridors are: C Street, northbound and southbound; DeBarr Road and 15th Avenue, eastbound and westbound; Lake Otis Parkway northbound; Muldoon Road, northbound and southbound; Tudor Road, eastbound and westbound; New Seward Highway, northbound and southbound; and Northern Lights Boulevard eastbound.

The *Girdwood Commercial Areas and Transportation Master Plan* describes Girdwood's vision for a low-impact, environmentally based tourism industry with adequate roads, streets, trails, and pedestrian systems. The *Chugiak-Eagle River Comprehensive Plan* describes the local transportation system as facing a number of challenges because of the population growth and community expansion occurring in the community.

#### *Trails*

Anchorage has a well-developed trail system, both in the Bowl and region wide. Because of the local geography and natural features, there are both land-based trail systems and water-based trail systems, linear greenbelts, and interpretive natural trails systems. In many places, these trail systems overlap and serve multi-purposes.

There are a number of water-based trail systems that have the potential to impact coastal waters. They include: Ship Creek, Chester Creek, Fish Creek, Campbell Creek, Little Campbell Creek, Furrow Creek, Rabbit Creek, Little Rabbit Creek, Potter Creek, Eagle River, Knik River, Placer River, Portage Creek, Eagle River, Eklutna River, and Twenty-Mile River.

These waterways are very important because they offer excellent recreational opportunities to residents and visitors alike and they provide important habitat for fish and wildlife. Water levels, water quality, riparian support, and access are key resource issues.

The *1997 Anchorage Areawide Trails Plan* provides for trail linkages and trailheads, and addresses a diverse group of trail users and activities and does not duplicate efforts of state and federal

management agencies for the planning of state and federal lands within the MOA. The trail networks in Girdwood and Chugiak-Eagle River also support the recreational activity base critical to the local economy. Commercial recreation and major parks and greenway corridors can be found in Eagle River, Chugiak, and nearby Eklutna.

Trail systems relevant to the MOA CMP include sections of:

- Anchorage Coastal Wildlife Refuge
- Far North Bicentennial Park
- Goose Lake Park
- University Lake Park
- Winner Creek
- Bird Ridge/Bird Creek
- Girdwood Coastal Wetlands
- Cheney Lake Park
- Johns Park
- Russian Jack Springs Park
- Section 36 Park Lands
- Portage
- Girdwood Beaver Pond
- Eagle River Valley Watershed

A number of important trail issues that are directly relevant to the MOA CMP were identified in the *1997Anchorage Areawide Trails Plan*. Relevant issues include:

- Protection of existing trail systems and linkages
- Access to trails and between trail systems
- Compatibility of trail use with adjacent uses and activities

### *Rail*

There are major railroad facilities, including offices, maintenance yards, and a passenger depot, located in the Ship Creek area. The Alaska Railroad Corporation owns most of the lower Ship Creek Valley. They lease land for fuel storage and other industrial uses. The railroad runs from the Kenai Peninsula, with terminals in Seward and Whittier, north to Anchorage, and then to Nenana and Fairbanks, in the interior. The railroad is a state-owned corporation and its operations are self-supporting. The railroad was established in 1914, by the U.S. Congress, to boost economic development by providing a way to get gold and other minerals from the Interior to port for shipment south (ISER, Research Summary No. 63, 2005).

According to ISER, the Alaska Railroad supports nearly 1,900 jobs and $83 million in payroll. Of the jobs, 42 percent are railroad jobs and 58 percent are in other Alaska businesses. Of the payroll, 53 percent goes to railroad employees and 47 percent to employees of the Alaska businesses. The jobs and payroll result from $108 million the railroad spends annually to operate and build facilities. Railroad employees spend their dollars on goods and services in Anchorage and the railroad invests its money in supplies and services from Alaska businesses. The railroad creates certain economic opportunities for Anchorage, including providing a cheaper, more efficient way to transport heavy, bulk commodities such as sand and gravel, and coal; transporting jet fuel from the refinery near Fairbanks to Anchorage; and, offering the tourism industry an alternative transportation mode.

## *Port of Anchorage*

The Port is the northernmost ice-free port in North America and has a tidal range of 38.9 feet, which is the second greatest tidal range in North America. The Port occupies 129 acres of uplands and 1,400 acres of tidelands. It is surrounded by military properties to the north, south, east, and by the Knik Arm of Upper Cook Inlet to the west. The Port site is also an AMSA under the 1987 MOA CMP. The AMSA gave priority to water-dependent uses where development of facilities is dependent upon the use of, or access to, coastal waters.

The Port serves 80 percent of Alaska's populated areas and is the gateway for 90 percent of all merchandise cargo consumed in Alaska. Cruise vessels and container, trailer, break-bulk, dry-bulk, and liquid-bulk cargos are accommodated. The Port stages 100 percent of the exports of refined petroleum products from the State's largest refinery in Fairbanks, in addition to staging petroleum deliveries from refiners on the Kenai Peninsula and in Valdez. The Port is the largest of the State's 95 ports and harbors and links railroad, road, and air cargo throughout the State (*2005 Port of Anchorage Marine Terminal Redevelopment Environmental Assessment*).

There are three major functional areas in the Port: the dock structure and berthing areas; storage areas; and the internal transportation network (roads, rail, and pipelines). The Port is self-supporting, receives no tax support from the MOA, and funds facility improvements through its revenues and grants. It is the largest of the State's 95 public ports and harbors, and accommodates cruise vessels and a full range of maritime commodities, including container, trailer, break-bulk, dry-bulk, and liquid-bulk cargos (*2005 Port of Anchorage Marine Terminal Redevelopment Environmental Assessment*).

The *1999 Port of Anchorage Master Plan* (VZM, 1999) identified two key findings about growth of port operations through 2025. First, the plan states that containerized cargo throughputs at the port are expected to grow at a compound annual rate of 2.5 percent, according to moderate forecasts. Second, market opportunities include growth in domestic and international container traffic, automobile and bulk cargos, and cruise activities.

The master plan identified a number of key needs:

(1) Replace obsolete infrastructure;

(2) Expand current and near-future cargo-handling capacity at maintainable, safe, and efficient levels;

(3) Create additional berths for new customers;

(4) Expand and upgrade facilities for offloading and more streamlined intermodal transportation;

(5) Construct and implement security requirements under the new Maritime Security mandates of 2002; and,

(6) Add space and improve berthing to support military rapid deployments.

The master plan makes implementation recommendations regarding facility improvements, access improvements, and strategic marketing. The facilities implementation recommendations include the development of a phased process that allows the Port to plan and construct new terminals and related infrastructure. Phases include existing facilities improvement, northern tidelands expansion, natural resources facility (land fill for dredged materials), and north access improvements program.

Implementation recommendations for improved access include the following: improve internal circulation and coordinate with other transportation planning efforts, including the *Anchorage Metropolitan Area Transportation Study Model*, *Ship Creek Transportation Study*, and other local and state road improvements efforts, such as Gambell Street and North Access. The strategic marketing implementation recommendations include continuing to be a major distribution center for the State of Alaska, and seeking new opportunities and approaches for increasing passenger travel.

Additional information from the *2003 Comprehensive Economic Development Strategy* (CEDS) for Anchorage indicates that Port expansion is considered to be the city's top priority. The Port contributed $15.6 million in personal income annually through employment, and an estimated total of $725 million to Alaska's Gross State Product.

### *Aviation*

There are three major aviation facilities: Merrill Field, the Ted Stevens Anchorage International Airport, and Lake Hood Airstrip and Seaplane Base. Merrill Field is municipal owned and occupies 436 acres in north Anchorage. The international airport is a state-owned facility located in west Anchorage and occupies 4,680 acres. Lake Hood Airstrip and Seaplane Base are located in west Anchorage near the international airport and is also a state-owned facility. Secondary airports include facilities in Birchwood and Girdwood with smaller airstrips scattered throughout the MOA.

## 4.1.6 Utility Routes and Facilities

Utilities include electricity, gas, water, wastewater, and communication services. Anchorage Municipal Light and Power (ML&P) provides electricity to that portion of the Anchorage Bowl that coincides generally with the old city limit. Chugach Electric Association (CEA) serves the remainder of the area not served by ML&P. CEA also serves Girdwood. Matanuska Electric Association (MEA) serves the Eagle River area. The Alaska Power Administration, a federal agency, operates the Eklutna power plant and wholesales electricity to ML&P, CEA, and MEA. ENSTAR provides natural gas directly to customers and to electric companies for power generation. Service is provided to the Anchorage Bowl via transmission facilities from the Kenai Peninsula across Turnagain Arm to the Potter Valley, and serves Anchorage via Hillside Drive, Abbott Loop/Bragaw, and a line that follows the Alaska Railroad right-of-way. Eagle River natural gas service is via a smaller distribution-size gas line. Water and wastewater service is generally provided within the paved portion of the MOA street right-of-way. The majority of planned water and wastewater improvements do not coincide with other existing/proposed utility extensions. Telephone and cable television transmission occurs through facilities (cables) that are typically installed in conjunction with the placement of other utility systems, especially underground electric. The MOA *1990 Utility Corridor Plan* delineates and regulates major utility corridors and the process for additions and amendments.

## 4.1.7 Land Ownership and Management Responsibilities

The lands and waters included in the coastal zone/designation are primarily in public ownership. The Designation boundary has been drawn to coincide with those lands and waters modeled as having highest sensitivity. The land within the designation is primarily public and is constrained by several environmental features. The area is comprised of streams, lakes; drainage ways and ravines; wetlands and lowlands; shorelines along waterways, lakes, and ponds; trail rights-of-way and easements; and, parks and greenbelts.

Management of the lands and waters inside the designation is the responsibility of the MOA, and state and federal resource agencies.

### 4.1.8 Subject Uses, Activities, and Designations

In accordance with 11 AAC 114.250, Subject Uses, Activities, and Designations, the MOA CMP describes those land and water uses and activities that are subject to the plan. The uses and activities subject to the plan are limited to those included in 11 AAC 112.200–11 AAC 112.240, 11 AAC 112.260–11 AAC 112.280, and 11 AAC 114.250 (b)–(i) and include:

- Habitats – Important Habitat, 11 AAC 112.300(9)
- Coastal Development, 11 AAC 112.200
- Coastal Access, 11 AAC 112.220

The MOA has designated a subset of lands and waters within its coastal zone boundary as a Recreation Use Area. There are resources within the designation that have important physical, biological, and cultural attributes upon which existing recreation uses and potential recreation uses depend.

Within the Anchorage Coastal Boundary and the Designated Recreation Use Area, the District has identified important habitats, demonstrated to have a high sensitivity to development by the ASIDESS Model.

### 4.1.9 Recreation Resources

Recreation resources features and values in the Anchorage coastal zone have been described in local and regional planning documents. See Section 4.1.1 Introduction for details on these plans. Similar resource values are promoted by other entities, such as the Anchorage Convention and Visitors Bureau, and the State Alaska Division of Tourism, and are described as key assets that contribute to the economic and social well being of the community and the State as a whole. Resources include the streams and lakes; intertidal areas, wetlands and marshes; parks and trails; and natural resource use areas of Anchorage.

The significance of Anchorage's coastal boundary and the recreation functions provided therein are described and documented in the Conceptual Open Space Map in *Anchorage 2020*, the Anchorage Bowl Parks Plan (Map 6), the *Anchorage Wetlands Management Plan*, the *Areawide Trails Plan*, and in similar maps in the *Chugiak-Eagle River Comprehensive Plan*, the *Turnagain Arm Comprehensive Plan*, and the *Girdwood Area Plan*. Additional details of these recreation functions and uses are reflected in the public survey summary of the Technical Report on Significant Natural Open Space in the Anchorage Bowl, from the 2004 Parks Plan survey, and a 2005 municipal-wide recreation survey. These maps, documents, and survey findings represent considerable community need for parks, open space, and recreation facilities, and contribute to defining the existing and potential recreation uses.

The MOA has a history of established recreation and tourism uses within its coastal zone boundary, focused for years on the extensive trails network and park system. With over 200 miles of trails in the Anchorage Bowl alone, the MOA trail system networks throughout the coastal boundary. The MOA has a formal goal, with associated design standards, of providing pedestrian connectivity and, where appropriate, habitat connectivity between and among various land uses, subdivisions, schools, employment centers, and parks and open spaces. This connectivity standard is a driver in the Parks Plan implementation. MOA policy and design standards aim to achieve trail and park locations within walking distances (ideally ¼ mile) of residents. Since the MOA coastal boundary consists of numerous east-west-trending corridors, which parallel the riparian zones, the coastal boundary is the essential element of this goal. The MOA coastal zone provides most of the only remaining lands

where existing and potential future recreation uses and connections between homes and schools can occur. The Recreation Use Designation directly coincides with the MOA's long-term goal of providing coastal and public access to coastal resources and the public recreation functions that these provide.

While trails are the essential public access means into Anchorage's coastal boundary, recreation uses and potential uses associated with the adjacent lands continue to grow. Unlike other sections of Alaska, Anchorage supports higher residential and commercial development densities, which naturally generate higher parks and recreation needs. Along with our efficient access and well-developed trail system, residents and tourists have direct exposure to most MOA parks and these are used by large numbers and in all seasons. Recent trail counts from the Coastal and nearby Chester Creek Greenbelt Trails show summer season uses in excess of 1200 people per day. The existing use and potential for use of these parks has also been established thru demand analyses for organized sports fields, thru Alaska Tourism and Marketing surveys and trends analyses, by land use analyses, and by new levels-of-service standards in the Parks Plan.

Aside from the established and documented public use of recreation facilities (parks, picnic sites, ballfields, etc.) outlined in various District plans, passive recreation uses continue to expand in the MOA. Fishing, birding, and other tourism-related activities have been on the rise since the 1980s and exceed what the MOA had originally envisioned in its original coastal plan. For instance, at least 2-dozen commercial bird tour companies and hundreds of individual birders regularly visit parks and open space sites with native habitats in the Bowl, in the Eagle River Greenbelt, and in the Girdwood Valley each spring and summer. And the MOA has initiated a Pacific Salmon Restoration Program intended to enhance and/or restore salmon populations within the coastal boundary. This effort is in part aimed at drawing the community into the coastal zone for fishing and other passive recreation where such resources are concentrated.

Remaining undeveloped and public lands within the coastal boundary are recognized as a refuge for existing and potential future recreation resources and uses. This is particularly evident in the Anchorage Bowl, where little vacant land remains, and in both Turnagain Arm and Chugiak-Eagle River, where geography and federal and state conservation land units surround residential communities. Because the District's coastal boundary is a relatively small percentage of the MOA land mass, essentially all remaining undeveloped acreage provides an existing recreation function that is not, and can not be provided otherwise. At least in the Anchorage Bowl and the Turnagain Arm subareas, existing trails and riparian corridors lead to and concentrate public use at the immediate coastal fringe. Loss of existing or potential recreation areas to development in other sections of the Recreation Use Designation will have an immediate and significant negative impact on coastal access and coastal resources.

The following summarizes recreation use and potential for each of the MOA subareas:

Anchorage Bowl – Although open space and parks comprise 22% of the land use in the Bowl, most of this acreage is provided by only 4 large parks. In addition, state parkland dominates the land use to the east. Public access to open space is limited and/or informal in many sections of the Bowl. Through the policies of Anchorage 2020 and the Parks Plan, the MOA has established levels-of-service for community recreation needs based on population and housing densities. Based on these levels-of-service numbers, additional parks in four categories are needed in varying numbers in all sections of the Bowl. This needs assessment reflects the significance of existing and projected recreation sites and community uses. Geography, land ownership, and land use focuses recreation activities into the narrow riparian corridors and larger remaining open spaces in the Bowl. Nearly all of these existing or potential open space sites lie within the MOA coastal boundary in the Bowl.

*[NOTE—A new map could be added to the final plan that shows the park system with an overlay of the coastal boundary.]*

Chugiak-Eagle River – This section of the MOA is surrounded by military lands, Chugach State Park, and the Eagle River Greenbelt. It includes scattered large tracts of privately owned land, and numerous larger vacant areas. Access is limited as is public land and established park facilities. Because funding sources for park and facility developments are limited, public parcels, which conform strongly to the coastal boundary, are the most commonly used recreation sites. Existing recreation use and especially future potential will by necessity rely on the coastal areas, as these again provide continuity and connectivity between and among the residential developments and other public facilities. Most public use is concentrated in the Eagle River Greenbelt and adjacent public lands, where boating, fishing, and hiking are most common.

Turnagain Arm – All five communities in Turnagain Arm are surrounded by state and/or federal lands, and all border the *Seward Highway National Scenic Highway*. All communities depend on, and connect to, the Seward Highway recreation corridor, which includes formal and informal recreation areas, as well as public fishing access. Given the steep-sided geography and land ownership patterns in these communities, the coastal boundary is vital to public access and use of each area's coastal resources. Formal recreation facilities are lacking in this part of the Municipality and residents and tourists generally pursue nature-oriented activities (hiking, birding, fishing, hunting, climbing). Girdwood Valley, which is evolving as a resort community, and Portage Valley in the Chugach National Forest provide most recreation facilities and programs and attract thousands of visitors and residents in all seasons. All sections of the coastal boundary, but especially the public lands, correspond exactly with existing recreation uses, access and new recreation potential. These land uses and future recreation and open space needs of each community are documented in the Turnagain Arm Comprehensive Plan and the Girdwood Area Plan.

In addition, Anchorage is the primary jumping-off point for major recreation and tourism opportunities in the Matanuska-Susitna Valley, Denali National Park, Katmai National Park, Kenai Fjords, and Kodiak. Anchorage is also connected by road to the Kenai Peninsula via the Seward Highway, a National Scenic Highway, and the interior and rest of south central Alaska, via the Glenn and Parks Highways.

The recreation and tourism economy represents one of the fastest growing economic sectors in the Anchorage area. Anchorage has a steady, year-round employment base, with significant spikes in employment from recreation, tourism, and construction activities in the summer months.

## *Parks, Trails, and Natural Resource Use Areas*

### Parks

Anchorage has a large park system with 53 acres of parkland per 1,000 population. Of those acres, 55 percent are found in three major parks, including 4,000 acres at Far North Bicentennial Park, 1,000 acres at Kincaid Park, and 600 acres at Ruth Arcand Park. Over 79 percent of parks, natural resource use areas, and recreation facilities in the Bowl are mostly used as natural resource areas with limited development. The remaining 21 percent of land is devoted to traditional neighborhood and community parks with a mix of facilities and natural features such as picnic areas, trails, and some parking lots (*APNRF*).

Local use of the Anchorage park system is significant. The system includes neighborhood use areas, community use areas, special use areas, natural resource use areas, and trails and connections. Neighborhood use areas include close-to-home recreation areas typically 5-10 acres in size.

Community use areas are parks larger in size at 10-50 acres, and serving a broader purpose than neighborhood parks, while also preserving the unique landscape or natural use areas. Special use areas are represented by single, specialized recreation use, and can include such things as equestrian centers, sports parks, and indoor facilities.

Parks provide economic enhancement by improving real property values, attracting workers to live and work in the community, and enticing retirees to stay. Parks and trails not only are enjoyed by residents, but also attract visitors to extend their stay and contribute to the local tourism market. As Anchorage's population and economy continues to grow, there will be challenges to provide for the future recreational needs of residents.

In addition to the parks systems described above, Anchorage is framed by the Chugach State Park. This park is the third largest state park in the nation with 485,000 acres, abuts the foothills of east Anchorage, and is readily accessible by a number of trailheads and trail links. The half-million acre park is full of recreation opportunities, with some of Alaska's most accessible hiking, camping, wildlife viewing, climbing, and skiing/snowshoeing. The mountains frame the Anchorage landscape with vistas, sunrises, and in the winter months, alpenglow.

A variety of wildlife resides in the park including eagles, moose, bears, wolf packs, and lynx. The terrain includes meadows and open areas with high alpine wildflowers, rugged mountain peaks, glacier-fed rivers, clear water streams, mature spruce forests, and more than 50 glaciers. Access to this park (and trail) system is linked to the trail and greenbelt network in the Anchorage Bowl, Chugiak-Eagle River, and Turnagain Arm areas.

**Trails**

According to the 1997 *Anchorage Areawide Trails Plan*, there are more miles of trails in the State than roadways. Anchorage's extensive trail system has been described by *Bicycling Magazine* "as one of the best systems in the United States." The American Hiking Society named Anchorage second on a recent list of Top Trail Towns. The 120 miles (193 km) of paved trails and 300 miles (482 km) of unpaved and wilderness trails offer numerous opportunities for visitors to get out and enjoy Anchorage's natural areas.

The Anchorage Bowl trail system consists of dedicated trails within the area south of Fort Richardson and north of Muldoon Road to Cook Inlet, Chugach State Park, and Potter Section House. The Chugiak-Eagle River trail system covers the area from Muldoon Road, north to the Matanuska-Susitna Borough boundary, and from Knik Arm to Chugach State Park. The Girdwood-Turnagain Arm trail system includes those trails from the Potter Section House south to Girdwood, trails within the Girdwood community, and trails along Turnagain Arm (1997 *Anchorage Areawide Trails Plan*).

Trails include greenways and linear parks and provide the physical connection between residents, businesses, and the natural setting within which they area located. The 1997 *Anchorage Areawide Trails Plan* documents trail use and defines trail types to include: multi-use paved trails, multi-use unpaved trails, cross-country ski trails, snowmachine trails, skijoring trails, sled dog mushing trails, water trails, and natural trails.

**The Anchorage District has delineated the Tony Knowles Coastal Trail, the Chester Creek Trail, and Kincaid Park as a Recreation Use Designation**. Some of the top trail systems are listed below:

**Table 4-4 Designated Recreation Use Area - Trail System Resource Features**

| Trail System | Length | Access and Route | Resource Features |
|---|---|---|---|
| Tony Knowles Coastal Trail | 11 miles | From downtown and Westchester Lagoon or from Kincaid Park | Fish and wildlife habitat<br>Wildlife viewing<br>Scenic vistas |
| Kincaid Park Trails and Park | 43-mile network through 1,400 acres of parkland | From the coastal trail at either end | Scenic vistas – Mt. Susitna, Alaska Range |
| Kincaid Park is certified for international 5K, 10K, 15K, and 30K competition | Multiple length trails | From the coastal trail at Westchester Lagoon. | Forested natural areas |
| Chester Creek Trail | 6 miles | Connects with Coastal Trail | Fish and wildlife habitat |
| **OTHER SIGNIFICANT TRAILS** | | | |
| Flattop | 3 miles round trip | Trailhead in Chugach State Park | Wildlife viewing<br>Scenic vistas – Alaska Range, Cook Inlet |
| Williwaw Valley | 14 miles round trip | Glen Alps or Prospect Heights | Wildlife habitat<br>Wildlife viewing<br>Scenic vistas |
| Turnagain Arm Trails | 9.4 miles one way | Varying routes accessible via Potter Creek, McHugh Creek, Rainbow, or Windy Corner | Fish and wildlife habitat<br>Wildlife viewing<br>Scenic vistas |

Source: *Anchorage Park, Natural Resource, and Recreation Facility Plan, April 2006*

**Natural Resource Use Areas**

The term "natural resource use area" is used to describe those areas within the Anchorage Bowl Parks and Recreation System that are reserved primarily for their natural functions. Natural functions may include air and water quality, flood control, and the protection of wildlife values. These areas provide critical habitat for fish, and wildlife important to the quality of life in Anchorage. These lands can consist of individual sites exhibiting natural resources; lands that are unsuitable for development but offer natural resource potential such as steep slopes, drainage ways, and ravines, surface water management areas and utility easements; and protected lands, such as wetlands and lowlands, shorelines along waterways, lakes, and ponds. These natural landscapes and stream corridors also link neighborhoods, parks, and schools, and act as buffers between different land uses.

The term "natural resource use area" is used synonymously with natural open space, or open space, greenbelt, and habitat area, according to the *APNRF*. According to the plan, the natural resource use areas "help define the physical form of the city by contributing to its natural character and creating unique neighborhoods." Table 4.4.describes trail system resource features.

### *ACWR and Potter Marsh*

The ACWR extends from Point Woronzof southeast to Potter Creek. Potter Marsh, at the southern end of the ACWR, is one of the most accessible and scenic wildlife viewing areas in Alaska. Much of the rest of the refuge has only limited public access. Spruce, cottonwoods, and alders frame the north and east borders of the marsh. To the south, Turnagain Arm connects with Cook Inlet, and bald eagles, water birds, and spawning salmon can be found. A 1,550-foot boardwalk with interpretive signs provides access to the northern part of the marsh. A small highway pullout at the southern end of the marsh allows for viewing and photography from a vehicle.

The marsh hosts the greatest number of birds between late April and the end of May. Bald eagles, northern harriers, yellowlegs, Arctic terns, pintails, Canada geese, red-necked grebes, and Pacific loons stay through the summer. Muskrats and moose also frequent the marsh year-round; in May and June, they forage on the new green growth. From June through September, three species of salmon return to spawn in Rabbit Creek, which flows under the boardwalk. Fishing is prohibited. In winter, there are resident snowshoe hares, coyotes, beavers, weasels, mink, voles, and shrews. There are also piles of sedges pushed up on the marsh, and used by muskrats for winter food storage.

### *Palmer Hay Flats State Game Refuge*

Palmer Hay Flats is designated as a State Game Refuge, and is managed by ADFG. It is a popular wildlife viewing and waterfowl hunting area. The refuge lies north of Anchorage, at the head of Knik Arm. Although outside the MOA coastal zone, the refuge is an important recreation and tourism destination directly abutting the MOA coastal zone boundary. Tens of thousands of dabbling ducks, primarily pintails, mallards, green-winged teal, and wigeon, and thousands of diving ducks, including canvasbacks, greater scaup, and common goldeneye, arrive on the flats each spring and fall during their annual migration. Tundra and trumpeter swans, sandhill cranes, and three species of geese: lesser Canada geese, white-fronted geese, and snow geese, also can be viewed on the refuge. The wet meadows and marshes of the refuge are interspersed with islands of spruce trees and serve as major calving and wintering grounds for the Matanuska Valley moose population. Muskrats, snowshoe hares, red-tailed hawks, and coyotes on the refuge, can also be found in the refuge. The best time to view migrating waterfowl is between late April and mid-May.

## 4.1.10 Important Habitats

The coastal habitats occurring in the MOA coastal zone boundary/designated area, per 11 AAC 112.300(a) (2), (3), (4), (8), and (9), have been inventoried, analyzed, and described spatially in the maps (Map A, B, and C). This information has been used for the ASIDESS model and the designations. A brief narrative about each resource is included below.

### *Aquatic Habitats*

**Marine**

The marine environment is presented as a biophysical zone that includes marine, near-shore waters and intertidal wetlands, estuaries, and inland to the local mean high water line. These are mainly waters classified as Section 10 waters under the Clean Water Act.

**Wetlands**

Wetland resources include the adopted and updated municipal freshwater wetland boundaries, as delineated and designated (*A, B, C*) in the *Anchorage Wetlands Management Plan* (1996). Wetlands serve as critical points for the transport and transformation of essential nutrients from the terrestrial to the aquatic realm. Wetlands provide dissolved organic matter to surface waters and ultimately to marine coastal waters.

The extent of wetlands in the watershed directly affects the amount of nutrient concentrations available to surface waters. Levels of nutrients may be altered by development or loss of wetland hydrologic connections. Based on nutrient loading, wetlands are significantly and biologically productive habitats, and the uses and activities affecting wetlands can ultimately have a direct, and significant impact on marine coastal waters. There are a number of wetland types including coniferous woodland, deciduous woodland, mixed coniferous-deciduous woodland, mixed woodland, treeless bog, spruce bog, brackish marsh, tidal marsh, and wet deciduous woodlands.

**Streams and Lakes**

Stream resources include field-delineated stream channels, some historic, USGS-mapped channels not yet field-verified, current (2004) official Alaska Department of Fish and Game (ADFG) anadromous stream coverage, and additional stream reaches identified by recent fish surveys. Stream locations are based on GIS mapping by the Municipal Watershed Management Services (MWMS) and the *Municipal Hydrologic Classification System* (MOA Document #WMP APg97002). Lake resources include those delineated by the MWMS formal lake and waterbody coverage. Floodplain resources include mapped floodways and the 100-year floodplain boundaries, as delineated on the National Flood Insurance Rate Maps (FIRM).

## *Important Fish and Wildlife Habitats*

Most of these data were compiled through interviews with local experts and management professionals and taken from existing publications and literature or taken from existing municipal planning documents. Collectively, these data represent scientific evidence of the value of these significant resources to Anchorage.

**Anadromous Fish**

The information on fish streams and anadromous fish distribution is based on current ADFG information including:

(1) The *Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes* (referred to as the "Atlas");

(2) The *Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes* (referred to as the "Catalog");

(3) Recent ADFG stream surveys; and

(4) Information from ADFG on other known spawning, rearing, and overwinter habitats, and waterbodies stocked by ADFG.

Fish habitats and distribution information presented in the atlas includes delineation of known distribution of any of the five salmonids, spawning, rearing, and overwinter habitats, and ADFG fish-stocked waterbodies for the past 10 years. Minor tributaries are locally important for rearing and winter habitats. There is concern with cumulative riparian habitat losses and degradation, water

quality, and to some degree water quantity, loss of anadromous fish altogether in certain streams, fish passage obstruction issues, human use of stream banks and attendant erosion, and several very important anadromous fish concentration sites.

All of Cook Inlet is designated Essential Fish Habitat (EFH) for both juvenile and adult lifestages of Pacific cod, walleye pollock, and sculpins (NOAA Fisheries, 2003). Congress defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 USC 1802(10)). EFH guidelines under 50 CFR 600.10 further interpret the EFH definition as follows:

> Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and 'spawning, breeding, feeding, or growth' to maturity covers a species' full life cycle.

In addition, all streams, lakes, ponds, wetlands, and other water bodies that currently support or historically supported anadromous fish species (e.g., salmon) are considered freshwater EFH.

Key Scientific Interviews

- Stewart Seaberg, OHMP/ADNR
- Barry Stratton, ADFG

**Marine Fisheries and Marine Mammals**

Upper Cook Inlet marine fisheries include forage and groundfish species. Forage fish are important food for finfish, salmonids, marine mammals, and seabirds. Forage fish species include hooligan or candlefish, Bering Cisco, Pacific sandlance, capelin, saffron cod, longfin smelt, stickleback, and eulachon. Groundfish include Pacific halibut, walleye pollock, greenling, Pacific staghorn sculpin, clingfish, stickleback, skates, and the occasional shark (Port of Anchorage Marine Terminal Redevelopment Environmental Assessment, 2005). In addition, Upper Cook Inlet, as a fish migratory corridor, provides marine habitat to all five species of Alaska salmon.

Beluga whales occur seasonally throughout much of Alaska. Depending on the season, beluga whales can occur in both offshore and coastal waters. During the winter, belugas remain in Cook Inlet but they are more dispersed throughout Upper Cook Inlet. During the spring and summer, Upper Cook Inlet belugas are generally concentrated near the warmer waters of river mouths where prey is present. Belugas are often seen at the mouth of Ship Creek and offshore of the tidelands July to early October (Port of Anchorage Marine Terminal Redevelopment Environmental Assessment, 2005). Harbor seal are also commonly observed in Upper Cook Inlet (NOAA Fisheries, 2003). The closest identified harbor seal haulout site is approximately 25 miles at Chickaloon Bay in the southern portion of Turnagain Arm. In Upper Cook Inlet, harbor seal presence is seasonal along the Susitna River and other tributaries during eulachon and salmon migrations.

**Threatened and Endangered Species**

The NOAA lists seven species of whales found in Alaska waters as endangered. These include sperm, bowhead, humpback, fin, northern right, sei, and blue whales. The fin, sei, and humpback whales occur in the lower portion of Cook Inlet but are considered uncommon to rare in Upper Cook Inlet.

The remaining four species of whales are generally found in deeper offshore waters of the Gulf of Alaska, Bering Sea, and Beaufort Sea, and are not found in Upper Cook Inlet (NOAA Fisheries, 2003).

No stocks of Pacific salmon or steelhead originating from the freshwater habitats in Alaska are listed under the Endangered Species Act.

The endangered western populations of Steller sea lion, and the proposed threatened distinct population segment of northern sea otter, occur only in Lower Cook Inlet and are not known to occur in Upper Cook Inlet (NOAA Fisheries, 2003 and USFWS 2004).

## *Bird Resources and Habitats*

Bird resources and habitat per 11 AAC 112.300(a) (2), (3), (4), (8), and (9), have been inventoried, analyzed, and mapped in the new coastal resource atlas. Data highlights and the results of interviews with experts are included below.

**Birds of Prey (Raptors)**

Raptor habitat resources include the nesting and roosting sites, and important migratory habitat for birds of prey. Raptors include bald eagles and diurnal hawks.

Raptor species groups were defined by habitat use in the MOA, including nesting communities, migration habitats and eagle roosts, perch sites, and winter use concentrations. Several species are rare and irregular in winter, at or near the edge of their known Alaska winter range, including merlins and sharp-shinned hawks. Variable numbers of both gyrfalcon and peregrine falcons move through the area and occasionally winter. Local raptor nesting numbers are declining in part due to cumulative habitat losses, disturbance, and prey declines.

Key Scientific Interviews

- Bob Dittrick, ADNR
- Brad Andres, U.S. Fish and Wildlife Service (USFWS)
- Rick Sinnott, Alaska Department of Fish and Game (ADFG).

**Songbird Habitats**

Songbird resource habitats include nesting and migratory habitat assemblages, and important plant communities for groupings of important species of songbird habitats. The highlights of known *Species of Concern*, as identified by the USGS/USFWS Neotropical Bird Working Group, Alaska, are described. With ensuing research and field surveys since the 1970s, the value and productivity of Anchorage's intertidal habitats has increased in importance. The area between the mouth of Ship Creek and Potter Marsh has been nominated as an Important Bird Area by the National Audubon Society. The nomination represents a formal recognition that significant percentages of certain species depend on this coastal fringe for staging habitat.

Typical Anchorage area important songbird assemblages were delineated in the following plant community types: white spruce/birch forests, black cottonwood forest, mixed forest with freshwater seeps and pools, wetlands, and shrub zones.

The following S*pecies of Special Concern*, as listed by the Alaska Region, Neotropical Migratory Bird Working Group, are described as significant components in Anchorage's songbird groups. Several of these forms are on National Watch Lists as species of concern also:

- Varied Thrush
- Blackpoll Warbler
- Northern Waterthrush
- Western Wood-Pewee
- Boreal Chickadee
- Townsend's Warbler
- Brown Creeper
- Olive-sided Flycatcher
- Golden-crowned Kinglet
- Rusty Blackbird

In general, key informants noted that parcel and plant community sizes, as well as plant community cumulative losses, are limiting factors in shaping songbird populations and habitat use. Buffer corridors next to new developments and maintenance of large remaining wooded parcels are important to songbird viability in the Municipality. Changes in songbird populations and species combinations, and losses to forest residents can occur as a result of future land clearing, and road and linear developments.

Key Scientific Interview

- Colleen Handel, U.S. Geological Service (USGS), Biological Resources Division, Alaska Biological Science Center.

**Waterfowl Habitats**

Waterfowl resource habitats are described in the inventory as those areas that provide regular and consistent waterfowl migration, molting, and nesting habitats, as well as areas that regularly support high waterfowl species diversity and consistent winter habitat or concentration sites.

Significant waterfowl use sites were delineated in intertidal pockets, larger waterbodies and know lakes, patterned ground wetlands, and within some greenbelt wetlands and slough areas. Critical winter habitats were identified in lower Ship Creek.

Key Scientific Interviews

- Karen Laing, USFWS
- Maureen deZeeuw, USFWS
- Brad Andres, USFWS

**Loon Habitats**

Loon resource habitats include Pacific loon nesting, potential nesting waterbodies, and surrounding sensitive zones. A summary coverage of the following areas is provided:

- Pacific loon nesting areas including waterbodies where these loons nest and a 100-foot buffer around each;
- Potential Pacific loon nesting areas of both historic nest sites and where potential future sites still exists, given the expressed knowledge of nest site requirements; and
- Sensitive areas where loon nesting and nursery activities occur that are especially sensitive to disturbances.

Loons are considered a significant species for Anchorage. Anchorage loons are found to be generally sensitive to local disturbances, especially during early stages of nest and pair bonding, and when the young first hatch. Anchorage's loon nesting population is small, dwindling, and threatened by increasing development and recreation activities on lakes. Most Anchorage lakes provided historic nest use for loons, and Anchorage is now one of the few cities in the country to support nesting loons.

Key Scientific Interview

- Nancy Tankersly-Fair, ADFG

**Shorebird Habitats**

Shorebird habitats were mapped in the following categories:

- Nesting and brood rearing areas
- High species diversity sites
- Brood movement corridors
- Migration and staging areas
- Estuarine concentration areas

Upper Cook Inlet is a major migration corridor for shorebirds in their spring (early April to mid-May) and fall (early July to mid-September) migrations. Most of the region's major shorebird concentration areas are along the western shores of Upper Cook Inlet, the Susitna and Little Susitna River flats, and Matanuska and Knik River flats. During the spring, summer, and fall, shorebirds, gulls, and waterfowl use the intertidal mudflats of Ship Creek and the tidelands to the north of Cairn Point. The area of coastal wetlands and intertidal mudflats south of the Port, from Ship Creek to Potter Marsh, including Westchester Lagoon, has been nominated by the Audubon Society as an "Important Bird Area," because of its high concentrations of migrating waterfowl and shorebirds. Significant numbers of several species of Cook Inlet waterfowl and shorebirds stage in these intertidal areas.

Coastal/intertidal pools and ponds, and freshwater deltas in the Anchorage Coastal Wildlife Refuge, and north around to Ship Creek, provide high migrant numbers, and diversities. Estuaries provide the most consistent concentrations sites, including areas with seeps and springs, as well as major stream channels. The majority of Cook Inlet populations of Hudsonian Godwit, Short-billed Dowitcher, and Semi-palmated Plovers stage in the Earthquake Park-Ship Creek zone each fall.

Shorebird brood movements have been impacted with new developments and linear construction projects (roads) between bog breeding areas and coast. Shorebirds are very site tenacious to breeding and even migratory habitats year-to-year. Most local breeders need a fairly large territory, which have and continue to be land development and subdivision. Hudsonian Godwit may no longer nest in the area, except for maybe 1-2 pairs in Turnagain Bog.

Key Scientific Interviews

- L. Tibbets and R.E. Gill, USGS, Biological Resources Division, Alaska Biological Science Center
- Municipality of Anchorage Planning Department Staff

### *Terrestrial Resources and Habitats*

Terrestrial resources and habitats, per 11 AAC 112.300 (a) (2), (3), (4), (8), and (9), have been inventoried, analyzed, and are described spatially in the new atlas. Data highlights and the results of interviews with experts are included below.

**Moose Habitat**

The ADFG considers the entire Anchorage Bowl important moose habitat.

**Bear Habitat**

Bear resource habitat includes those areas identified on the ADFG black and brown bear habitat use maps, and also includes tracked bear sighting data from the past 10+ years.

There are typically 5-10 resident brown bears in the Anchorage Bowl, and another 10-20+ across the rest of the MOA. Habitat use is concentrated along the Chugach Front Range foothills, and down along the upper riparian corridors of the major salmon streams. Most habitats where brown bears roam are considered either critical or important to local populations. There are approximately 40-50 black bears in the Bowl and at least that many elsewhere. Important habitats focus across the sub-alpine and upper wooded fringes of the Chugach Front Range, and down into the larger wooded sections of the coastal plains, mainly along greenbelts and in the larger parks. Denning occurs in the upper stretches of this bear use zone.

Key Scientific Interviews

- Rick Sinnott, ADFG

## 4.1.11 Areas Meriting Special Attention

The following areas were classified as AMSAs under the original CMP. The areas described formerly in the 1984 CZM Plan as AMSAs are included in Chapter Four, Resource Inventory and Analysis, because of the important physical, biological, and cultural attributes of each area and because of the biological productivity of resources in specific AMSAs.

A description of each AMSA, its purpose and its value is described below.

### *Fish Creek Estuary*

Fish Creek Estuary is a coastal wetland valued for its unique physical features and natural productivity in an urban environment, wetlands, scenic views, and recreation. The area is described as: (1) an area of unique, scarce, fragile, or vulnerable natural habitat, physical features, and scenic importance; (2) an area 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; and (3) an area needed to protect, maintain, or replenish coastal land or resources, including coastal flooding.

### *Point Campbell Dunes and Delta*

The Point Campbell Dunes and Delta are valued for their scientific and educational importance and recreational and scenic qualities. The area offers the highest topographical vantage point in the Anchorage lowlands with a 360-degree view of the Alaska Range, Talkeetna Mountains, and Chugach-Kenai Range. Four types of glaciation can be seen: (1) the glacial profile of Mt. Susitna, (2) Caribou Hills and the truncated spurs of the Chugach Mountains, (3) Eklutna glaciation as high-level moraines on the Chugach Mountains, and (4) the Knik glaciation forming the lateral moraines upon

which Anchorage is built. The dunes are vulnerable to erosion from trampling and there is a lack of state and federal management of the resource. Dunes provide a natural buffer against the erosive forces of wind, water and waves. Sometimes it is necessary to stabilize or strengthen existing sand dunes or build new ones to protect oceanfront structures.

### *Point Campbell-Point Woronzof Coastal Wetlands*

The Point Campbell-Point Woronzof coastal wetlands are valued for their biologically productive habitat, scenic importance, and recreational qualities. The coastal marsh supports numerous species of migratory waterbirds. The site offers scenic views across Cook Inlet and views of Fire Island. The site is located close to the urbanized portions of Anchorage, yet provides opportunities for recreation and wildlife viewing. The area can be described as: (1) an area of unique, scarce, fragile, or vulnerable natural habitat, physical features, and scenic importance; (2) an area 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) an area of significant hazard, if developed, because of storms, slides, floods, erosion, and settlement; and (4) an area needed to protect, maintain, or replenish coastal land or resources, including coastal floodplains, beaches, and offshore sand deposits.

### *Point Woronzof Bluffs*

The bluffs at Point Woronzof are valued for their scenic and open space qualities and their scientific and educational importance. The bluffs are important because they contain the only known fossil beds in the Anchorage area. The site also offers views of Mt. McKinley and the skyline of Anchorage. The area can be described as: (1) an area of unique, scarce, fragile, or vulnerable natural habitat, physical features, and scenic importance; (2) an area of unique geologic or topographic significance, that is susceptible to industrial or commercial development; and (3) an area with special scientific values or opportunities, including those where ongoing research projects could be jeopardized by development or conflicting uses and activities.

### *Port of Anchorage*

The area can be described as tidal flats within the coastal floodplain of Ship Creek. The Port of Anchorage is an important part of both the Anchorage and state economy. Most facilities located here are water-dependent, and require direct access to coastal waters. There are also supporting infrastructure and activities that are water-related. The Port has an adopted Master Plan that guides development. The port area is also home to a unique urban salmon fishery in Ship Creek. The area was classified as an AMSA in the original coastal management plan in order to preserve an area where development of facilities depends upon the use of, or access to, coastal waters.

### *Andesitic Dike at Potter Marsh*

The Andesitic Dike at Potter Marsh is the only known igneous exposure in the Anchorage area. The dike is located just east of Potter Marsh, along the Old Seward Highway. The area can be described as: (1) an area of unique, scarce, fragile, or vulnerable natural habitat, physical features, and scenic importance; (2) an area of unique geologic or topographic significance, that is susceptible to industrial or commercial development; and, (3) an area with special scientific values or opportunities, including those where ongoing research projects could be jeopardized by development or conflicting uses and activities.

### *Seward Highway/Turnagain Arm Scenic Corridor*

The Seward Highway serves those portions of population concentrated south of the Anchorage Bowl, generally along the Seward Highway, and extending to Portage at the southern corporate boundary.

The corridor offers numerous scenic vistas, includes glacial valleys, glaciers, a variety of vegetation types, a change in ecosystems, and a variety of wildlife species. Several streams cross the highway and offer fishing opportunities.

The recreation, scenic, heritage, or wilderness significance of the area was first formally recognized by the U.S. Secretary of the Interior in 1958. In addition, many historical and archaeological sites are found adjacent to the Seward Highway. The area can be described as an area of unique, scarce, fragile, or vulnerable natural habitat, physical features, and scenic importance.

### *Bird Creek Regional Park*

The Bird Creek Regional Park is managed by the ANDR, Division of Parks. The park lies mostly on the valley floor of Bird and Penguin Creeks. It is valued for the conservation and protection of habitat, recreation opportunities, and scenic qualities. The area is described as an: (1) area of unique, scarce, fragile, or vulnerable natural habitat, physical features, historical significance, cultural value, and scenic importance; (2) an area of natural productivity of essential habitat for living resources, including fish, wildlife, and the various components of the food web critical to their well-being; and (3) an area of substantial recreational value and/or opportunity.

### *Eagle River Valley Lowlands*

Eagle River is Anchorage's largest river, running approximately 41 miles from its source at Eagle Glacier to the coastal waters of Knik Arm. It is valued for recreation, flood control, open space, fish and wildlife habitat, and view sheds. The area is described as: (1) an area of unique, scarce, fragile, or vulnerable natural habitat, physical features, and scenic qualities; (2) an area of substantial recreational value or opportunity; (3) an area of unique geologic or topographic significance, that is susceptible to industrial or commercial development; and (4) an area of significant hazard, due to storms, slides, floods, erosion, or settlement.

### *Old Girdwood Townsite*

The Old Girdwood Townsite was built on the shores of Turnagain Arm. Subsidence following the Good Friday Earthquake of March 1964, inundated the original townsite with saltwater. The vegetation of the area has changed to a more saltwater-tolerant plant community. It is a flat and boggy area with grasses and sedges, and has been identified by the ADFG as a resting and habitat area for migratory waterfowl and other birds. The area can be described as: (1) an area of unique, scarce, fragile, or vulnerable natural habitat, physical features, and scenic importance; (2) an area of unique geologic or topographic significance, that is susceptible to industrial or commercial development; and (3) an area of significant hazard, if developed, because of storms, slides, floods, and erosion.

## 4.2 COASTAL RESOURCE ANALYSIS

Impacts to coastal resources do not necessarily result from any single factor, but rather from the interaction of various effects. Some individual resources may have greater value, as part of a system or complex of habitats, than as an isolated consideration.

The productivity of the important habitat in the Anchorage coastal zone and the physical, biological, and cultural attributes of the coastal resources upon which recreation use depends can be directly and significantly affected by a number of uses and activities.

This chapter presents the resource analysis methodology used to develop the maps and enforceable policies and discusses the uses and activities of concern in the coastal zone.

### 4.2.1 Analysis Methodology

#### *Original Resource Inventory and Mapping*

The original MOA CMP resource inventory focused on a mapping regime summarized in the four-volume *Anchorage Coastal Resource Atlas*. There were four sub-areas described: (1) Chugiak-Eagle River, (2) Turnagain Arm, (3) Anchorage Bowl, and (4) Fire Island. Each sub-area also had a set of coastal resource maps. The resource analysis grouped areas with similar environmental characteristics into Resource Policy Units (RPUs). The RPUs became the fundamental planning elements of the original MOA CMP. Each RPU was evaluated for suitability for development and/or preservation. The RPUs were further aggregated into broad classification categories, based on development suitability and general environmental sensitivity. These broad classification categories were termed the Preservation, Conservation, and Utilization Environments (*1987 MOA CMP*, Chapter 3).

The original resource inventory was based on field investigations and mapping, aerial photography review and analysis, and assimilation of other biophysical data that existed at the time. These data were integrated using an overlay process and characteristics were compared and weighted based on levels of sensitivity, significance, constraints, and impacts potential. Impacts analysis was performed with a series of data matrices that matched potential development activities and associated impacts weighted against sensitivities of each resource unit. The matrix became a type of suitability index for estimating impacts to coastal resources in the Preservation, Conservation, and Utilization Environments.

Goals and enforceable policies were crafted for each of the RPUs and were used historically as conditions of approval when issuing permits. The goals and policies were also integrated into other regulatory tools, such as the Anchorage Land Use Code and other MOA planning documents. Special area plans were developed, and in some cases, adopted as elements of the CMP, to provide further detail and site-specific enforceable policies for certain RPUs. The two most well known plans are the *Anchorage Wetlands Management Plan* (1982 and 1996), and the three-volume *Anchorage Parks, Greenbelt, and Recreation Facility Plan* (1985).

#### *Updated Coastal Resource Data Maps*

For this CMP Amendment, the MOA undertook a full revision of the original three-volume *Anchorage Coastal Resource Atlas*. [The *Fire Island Atlas* has not been revised. Fire Island remains inside the Anchorage coastal boundary.] This information was used to create a sensitivity analysis model from which the designations were developed.

While attempting to remain true to the original content and format, revisions were based on, and included, an expanded and more diverse set of coastal resource data made up of a series of maps, some of which were combined and presented as conglomerate maps. A summary of terrain and vegetation mapping from a software analysis of aerial photography, which displays as a plant community map, has been created as a land cover layer.

The following resource data has been mapped for the entire MOA coastal zone, which includes the Anchorage Bowl, Chugiak-Eagle River, and Turnagain Arm:

- Coastal Resource Sensitivity (refer to ASIDESS model)
- Bear habitats
- Watersheds, floodplains, and freshwater wetlands
- Municipal parks and trails
- Land use
- Anadromous fish streams
- Soils, slope, and avalanche
- Landcover and plant communities

Additionally, bird habitats, surficial geology, and geotechnical data has been mapped for that portion of the coastal zone within the Anchorage Bowl, however, the data sets for these resources are currently missing or incomplete for Chugiak-Eagle River and Turnagain Arm. **These data sets will be added to the MOA CMP coverage and Coastal Resource Atlas as they are completed.**

Fish and wildlife elements are combined into the Wildlife Habitat Map for the Bowl. Most of these data were accumulated during a yearlong species and habitat inventory project, in which the MOA teamed with The Great Land Trust biology staff.

Scientific interviews with key informants and professionals in each technical field, and reviews of recent publications for each subject area were made during this process to update existing information and delineate new data on maps and aerial photography. These data resulted from a combination of professional knowledge and field experience of each key-informant in each subject area, as well as from existing or "in-press" scientific studies and reported results. These data were transferred to maps using a mylar overlay on 1" to 2400' scale aerial orthophoto maps, and then later digitized into a Geographic Information System (GIS) database.

## *Sensitivity Index Model*

A sensitivity index model was designed using the updated resource information to provide a data analytical tool for use in revising the *Anchorage Coastal Resource Atlas*. The model generates map products that represent the result of GIS layer assimilations of all the new coastal resources data. This analysis is based on an ESRI ArcGIS, Version 9.0, software-modeling program, also known as the *Anchorage Sensitivity Index Decision Support System* (ASIDESS).

The original *Anchorage Coastal Resource Atlas* was completely updated by the ASIDESS Model, and for the purposes of the MOA CMP Amendment, was replaced. The original atlas provided the important historical and scientific documentation for the model.

The ASIDESS Model enables the user to explore the sensitivity of areas to development. Sensitivity data sets are based on five topics: (1) aquatic resources, (2) coastal and public access, (3) geotechnical hazards, (4) habitat, and (5) human impacts.

### Geographic Information System

In order to delineate specific sensitive areas within Anchorage's coastal boundary, each GIS layer was assigned a series of weights based on the intrinsic habitat values, known sensitivities to disturbance, and importance to each species' life cycle needs in the Anchorage area. Additional GIS layers were added to the model as important data modifiers and as refinements to the individual significance of sensitive areas. These layers include road rights-of-way and land use. The GIS coverage was assigned negative weights in order to correlate these "human" factors as impacts and modifiers of natural areas. For example, the land use categories were given various negative values, based on their "typical" development patterns, as these would impact sensitive environments. Negative land use values were used because they further modify the relative significance, rarity, and sensitivity of the habitat coverage.

In the designed default settings mode, the sensitivity model produces a discrete new GIS layer, which is called the sensitivity model layer. This layer represents the intersections of all the GIS layers. Along with the modeling technician's and software manufacturer recommendations, MOA staff then created logical breaks within the progression of intersection points generated by running the model, based on the number of overlap locations of each layer. The range of overlap points varied from 1.0 to 12.5, and the breakdown represented the logic of best professional judgment on points for

distinguishing high overlap = high sensitivity, mid-overlap = moderate sensitivity, and lower overlap = lowest sensitivity. These data breaks also followed natural or logical data separations identified in the model program.

Every one of these GIS layers is based on data that represent important coastal resources. The locations and frequency of resource-overlap contributes progressively to an area's increasing level of significance and sensitivity. The results of the model are portrayed to represent the scientific basis for calling out the most important habitats and coastal resources, as required by 11 AAC 114.250 (h).

Specific areas of sensitivity form the rational basis for the developing the Designated Recreation Use Area and the Designated Important Habitat Area. Those areas within the coastal zone having a low to medium sensitivity to development correspond to the Designated Recreation Use Area. Those areas having a high sensitivity to development correspond to the Designated Important Habitat Area.

**Metadata**

Metadata for this GIS model program are included as the scientific documentation for the weighting scheme that generated the sensitivity locations and the two designations. The sensitivity locations are produced with the software, and are intended to be scientific and objective delineations of sensitive and important coastal resources for the MOA. The model details are described in Appendix F. The detailed maps for the coastal resources will be included in Volume II Resource Maps in final plan amendment.

For Chugiak-Eagle River and Turnagain Arm, the MOA GIS database was used as the analytical tool to delineate sensitivity. The Designated Important Habitat Area coincides where two or more data layers overlapped and where layers overlapped anadromous fish streams out to a point 200-feet from each stream's centerline. Data layers include: anadromous fish, bears, wetlands, parks, trails, flood zone, lakes, streams, and avalanche. A weighting method for those data that were available was applied and is similar to the weighting method used in the Sensitivity Model. For instance, only "A" and "B" wetland coverage, only anadromous streams, and only the essential bear habitats were included in the basic set of data coverages, which mirrors the protocols set up in the Sensitivity Model.

### 4.2.2 Uses and Activities of Concern

There are a number of uses and activities of concern that are related to community expansion that have the potential to create impacts on or adjacent to the streams, lakes, and wetlands within Anchorage's coastal zone. Uses and activities include (1) shoreline modifications, (2) stream channel alterations, (3) removal of shoreline vegetation and increases in impervious surfaces, (4) improper placement of drainage structures, (5) construction disturbances, (6) changes in surface hydrology, and (8) degradation of water quality.

These uses and activities have been documented in local studies and plans to have the potential to adversely impact the physical, biological, and cultural attributes upon which the recreation use of these resources depends. Certain uses and activities also have the potential to have a direct and significant impact on coastal waters and have been documented in the ASIDESS model to be biologically and significantly productive.

#### *Shoreline Modifications*

Shoreline modifications in Anchorage have historically been focused along Knik Arm, in an area between the west edge of downtown and the north end of the Port. Most modifications have included fill and bulkhead efforts that occur as part of port and harbor facilities, road, and utility expansion and

improvement projects. Most of these shoreline projects have been essential to Anchorage's, and the State's transportation, utility, and shipping links, and the bulk of these have occurred prior to the 1990s. Typical shoreline structures include: bulkheads, riprap, breakwaters, causeways, piers, docks, and bridges.

Poorly designed, or improperly placed, shoreline structures may destroy important aquatic or marine habitats, significantly disrupt sediment transport, induce erosion or accretion, or adversely alter tidal circulation patterns. Appropriate re-vegetation of disturbed areas, using native species, will be important to minimizing erosion.

Shoreline stabilization and the increasing modification of natural shorelines to prevent, or reduce the landward migration of the shoreline, which is a natural process, can often result in the loss of shallow water habitats, wetlands, reduced fish diversity and abundance, and changes in runoff patterns.

Although the individual impact to fish and wildlife habitats from a single shoreline modification project may not be significant, the cumulative effects of multiple projects need to be considered when evaluating the extent of impact to important marine habitats, fish and wildlife use areas, and recreation activities. These impacts are particularly significant to the Port of Anchorage and Ship Creek area, where land uses are regulated to assure water-dependent/water-related activities, because there are few such marine access sites within the MOA.

### *Stream Channel Alterations*

Stream channel alterations include uses and activities such as channelization, diversions, channel widening or narrowing, changing gradients, and removing streamside vegetation. Meandering stream courses are often "straightened" to accommodate road and/or utility alignments, commercial or industrial fill areas, or residential developments.

Much of Anchorage's historic stream channelization activities occurred in the period between 1940 and the 1980s. Straightening has the effect of shortening the stream, which may intensify water velocity due to an increased stream gradient. The meanders in an undisturbed stream system absorb the stream's energy, and allow for the creation of pools and riffles. When a stream is channelized, a trough is created, and there are few opportunities for necessary aquatic habitats to form within the "trough" to replace those that have been lost. Some of the oldest known channelized reaches of Anchorage's streams are only now showing signs of a natural recreation of meanders.

Channelization not only affects the hydraulic equilibrium of a flowing water system, but also can have an adverse effect on stream biota, the distribution of streambed materials, stream temperature, and the upstream migration of spawning salmon. Narrowing a stream channel by making it deeper may increase stream bank erosion and decrease food organism productivity within the channel. Stream diversions involve moving stream flow to another channel, or precluding a stream from utilizing its entire floodplain.

Diversions of streams often are proposed where development activities, such as roadways, mining, cleared areas, or fill for pads, attempt to re-route a natural stream course around or away from the development area. Diversions may be temporary or permanent, but in either case, stream depth, gradient, and velocity are subject to change with attendant alterations to the characteristics of the fish habitat. Small, clear-water meandering streams are sensitive to channel modifications, although all streams are susceptible to adverse impacts from alteration of stream hydraulic characteristics. Although the individual impact to fish and wildlife habitats from a single stream channel modification may not be significant, the cumulative effects of multiple modifications need to be considered when

evaluating the extent of impact to important marine habitats, fish and wildlife use areas, and recreation activities.

### *Removal of Shoreline Vegetation*

Removal of shoreline vegetation can result in excessive turbidity. Long-term excessive turbidity can adversely affect overall stream or marine environment productivity, primarily by reducing light penetration important to photosynthesis and by increasing stream temperature (Hall and McKay, 1983). Even where fish resources are not directly impacted by siltation, associated impacts of reduced photosynthesis, increased water temperature, and reduced dissolved oxygen may decrease the value of aquatic systems to fish (Bjornn et al., 1977). Eroded soil may also pose a water quality issue directly as a result of sedimentation and siltation, and indirectly from contaminants carried with or attached to soil particles that are carried into the water.

Sediment is commonly introduced into Anchorage streams as surface runoff from roadways and cleared areas, or runoff from construction sites. Sedimentation can cover the existing streambed and fill spaces between bottom materials. Sediment can smother fish food organisms, such as algae and invertebrates. Emergent vegetation in wetlands is adversely affected by increased sediment. Fine sediment (fines) that infiltrate into stream substrates can smother incubating salmonid eggs and young fry. Proper stormwater management is particularly important where high levels of precipitation are a common occurrence, and in parts of Anchorage where runoff volumes are artificially high, due to high percentages of impervious surface. Water quality impacts, mainly from occasional point sources, and from chronic non-point source runoff, have been documented in most of Anchorage's streams, in particular those within the central sections of the Anchorage Bowl.

Fish resources and habitats, and to some degree, public recreation activities can be negatively impacted when development results in the change in drainage patterns, negative water quality impacts, loss of habitat, and loss of wetlands. Although the individual impact to fish and wildlife habitats from a incidental removal of shoreline vegetation may not be significant, the cumulative effects of projects that remove shoreline vegetation need to be considered when evaluating the extent of impact to important marine habitats, fish and wildlife use areas, and recreation activities.

### *Clearing and Excavation Activities & Loss of Vegetative Habitat*

Development activities that can create the loss of vegetative habitat include clearing and excavation; placement of fill for residential, commercial, industrial, and community facilities; road construction; utility placement; and harbor facility development. Changes that result in the loss of plant species and communities can, in turn, result in decreased habitat productivity and decreased water quality.

Considerable fish and wildlife habitat losses have accrued over the past three decades in Anchorage; and these losses are attributable to residential development, expansion of community infrastructure and public use facilities, and more recently because of industrial and large-scale commercial development. Most of this wildlife habitat and plant community change has occurred in the Anchorage Bowl, concentrated in the periods between 1950 and the mid-1990s. Within that time frame, nearly 10,000 acres of various wetland types were cleared, drained, and/or filled. This concentration of fill and subsequent habitat losses of various plant communities has led to diminished local breeding populations of several obligate and facultative wetland bird species.

Notable declines in nesting shorebirds and waterfowl have been documented and/or been accounted for with anecdotal information produced beginning in the 1980s. The greatest impacts, or those areas with the largest overall percentages of wetland acres lost, include the Chester Creek, Fish Creek, and Little Campbell Creek watersheds. Subsequent physical impacts associated with these cumulative

wetland losses include known or documented plant community changes, and plant diversity losses, introduction of exotics and less valuable plant species, increased long-term erosion runoff, and nutrient enrichment/contamination of lakes.

### *Improper Placement of Drainage Structures*

Culverts are the most commonly used drainage structure and must be correctly installed to allow both adult and juvenile fish to move upstream and downstream, unimpeded. If the culvert is not properly set in the streambed, its outlet may be perched above the stream surface, creating a waterfall that impedes passage for many species and age classes of fish. Undersized culverts concentrate stream flow such that velocities through the pipe exceed the swimming capability of fish, especially younger age classes of coho and sockeye salmon. This situation constitutes a "velocity barrier" to fish passage. Where feasible, bridges are preferable to culverts, because they allow unobstructed flow of water and passage of fish. However, if bridge supports are placed within a narrow channel, they may also constrict flows, increase flow velocities, or accumulate debris, which creates a barrier to fish movements.

### *Construction Activity & Disturbance to Fish and Wildlife*

During construction and operation of development sites and facilities, the physical presence of equipment, machinery, ships, motor vehicles, and human beings can discourage or preclude the use of specific sites or areas important to wildlife populations.

Although some acclimation to development activity can be expected, some marine mammal and shorebird species are generally more sensitive to activity disturbance because their use areas are discrete and substitute habitats are not readily available. Some marine mammals have been shown to be vulnerable to disruptions caused by development activities. Helicopters, low-flying aircraft, boat traffic, and human presence have been associated with pup mortality and declining use of some habitats by marine mammals. Development activities in flat terrain, or areas devoid of visual barriers, may be more disturbing to wildlife species than similar activities conducted where the topography or vegetative buffers obscures visibility.

Wildlife species most susceptible to activity disturbance are ducks, geese, shorebirds, songbirds and bears. Waterfowl and shorebirds are present in largest numbers during spring and fall migration. There are small numbers of wintering waterfowl, mostly along lower Ship Creek and in a few other creeks where open water persists. Moderate numbers of bald eagles winter in the immediate coastal sections, which is at the northern limits of their Alaska winter range in the State. The critically important resting and feeding activities that occur at these times could be adversely affected by development activity, if the disturbance is such that the birds are prevented from using feeding and resting areas. Migrant species are most vulnerable to disturbance during stopovers, because these times are critical to survival. Some waterfowl and shorebirds that nest and/or summer in the MOA coastal zone may acclimate to the sights and sounds around them, while others may remain sensitive to disturbance. This is important because much of the remaining native habitats in the area are fringed with development.

Wildlife may be also adversely affected by loud and unpredictable noise (startling sounds). Nesting waterfowl and seabirds are particularly vulnerable to startling noises that can result in direct mortality to eggs and young through destruction, abandonment, or increased susceptibility to predation during the absence of the parent bird. Egg mortality also can occur, when exposed eggs become overheated or chilled, after parents have been driven from the nest. Molting birds may be vulnerable to noise disturbance because they are already under considerable physiological stress during their flightless period. Birds on staging areas are actively feeding to replenish fat reserves lost during spring

migration (and prior to nesting) or preparing for extended migrations south in the fall. Loss of access to these important seasonal feeding and resting areas, due to noise disturbance, may seriously affect productivity and survival of adult birds.

Wildlife may be precluded from using undisturbed habitats adjacent to directly disturbed habitats, due to noise or activity that discourages wildlife presence. The alteration or loss or terrestrial habitats are most critical to wildlife populations if important feeding areas or seasonal use areas of limited availability are disturbed. Wildlife habitat may also be impacted, both from direct and indirect activities associated with development. Alteration, fragmentation, or destruction of wildlife habitat can result in the direct loss or displacement of species, and the ability of the ecosystem to support other biological resources, such as the plant communities upon which the wildlife relied for survival.

### *Construction Activity & Changes in Water Quality*

As a result of historical and ongoing construction and development activities, certain portions of waterbodies and streams in Anchorage's coastal zone show varying degrees of water quality degradation. Although some sections and reaches of streams have been documented with heavy metal and other toxic contaminations, the predominant water quality problems are from turbidity and above-acceptable fecal coliform levels. At least 12 Anchorage waterbodies are included in the ADEC *Category 5/Section 303(d) Listed Waterbodies*, nearly all with fecal coliform issues.

In a broader sense, most of the MOA streams have periods of elevated turbidity levels and chronic low-levels of sediments, mainly associated with non-point source additions from construction sites and untreated, or under-maintained storm water runoff pipes. Runoff treatment and related storm drain systems in the MOA are now regulated by conditions of an EPA NPDES permit. These permit requirements specifically target management and treatment of construction activities and land use policies in ways that are intended to reduce chronic and storm-event levels of sediment loads.

Policies in this plan provide methods that address local concerns with water quality that are not within ADEC's jurisdiction. ADEC does not regulate water quality or quantity issues relative to residential development in Anchorage. The MOA, through its local land use code, building permit regulations, and watershed management program, continues to manage water-related issues associated with residential land uses. Several enforceable policies provide assistance with this discrete management of local water quality and quantity.

### *Changes in Surface Hydrology & Loss of Aquatic Habitats*

Changes in surface hydrology and water quality can have adverse impacts on aquatic species, such as fish, plants, and microbes. Direct alteration of stream channels, and secondary and ephemeral drainage ways, including ditching of streams, culverts at numerous crossings, indiscriminate changes to the riparian corridor soils and vegetation, channelization of stream reaches, and continued creation of impervious surfaces adjacent to waterbodies, was a common development theme in the 1970s and 1980s. Along with a lack of control of runoff volumes, resulting from lack of stormwater runoff management, and the fact that essentially all storm drains "day-lighted" into Anchorage's creeks, a common impact was faster storm event volume increases, and reduced creek base flows. That meant that the main creek channels had lessened base flows, and increased stormwater runoff peak flows. Fish resources suffered from these creek flow volume alterations, and also from numerous fish passage blockages, resulting from new culverts, fills, and channelization activities. Fish passage has been all but blocked into the Chester Creek watershed, and into parts of the Little Campbell Creek tributaries.

Resident and anadromous fish populations have been variously reduced, and or nearly eliminated in several Anchorage Bowl streams, due to habitat alteration, water quality, and in-stream passage impacts. Except in those stream systems that continued to be enhanced with stocked fish, native salmonids are nearly extirpated from Chester and Fish Creeks, because of passage blockages near their mouths, while Little Campbell and Campbell Creek watersheds include numerous minor blockages from culverts and channelization actions. The Campbell Creek watershed anadromous fish populations are continuously impacted and threatened, mainly from chronic sediment loading, generated by construction and development activities, vegetation removal, and street maintenance operations. Most of the other anadromous streams remain in good health.

Studies from the 1980s led the State to identify several Anchorage streams as impaired waterbodies. The MOA has initiated several programs since the early 1980s to attempt to address and assert long-term controls on water quality problems, culminating with the issuance of a federal National Pollutant Discharge Elimination System Permit (NPDES) from the U.S. Environmental Protection Agency in 1992. Conditions of this federal permit added water quality, land use regulation, and management practices for stormwater management. Several of these items relate directly to, and serve as implementation measures to, enforceable policies from the original 1987 MOA CMP, notably for the River Floodplains and Class I, II, and III Waters Resource Policy Units, and to enforceable policies in this plan amendment. Today, the MOA Project Management and Engineering Department's Watershed Management Division (referred to as Watershed Management Services also - WMS) maintains a creek-by-creek analysis of impervious surface calculations. According to the WMS analysis, Anchorage creeks and streams are at or over the threshold where base flows are lowered and storm events are faster with higher volumes. This results in adverse impacts to fish habitat, water quality. Increased flow volumes affect fish overwintering and summer rearing habitats.

Increased pressures to develop the remaining vacant lands will continue to put pressure on shoreline alterations along the creek systems. Since the MOA consolidated public ownership of lands along many greenbelts, these areas are now the focus of considerable public recreation activity. These linear habitats along the creeks also provide increasingly important wildlife corridors, and they serve as connections for wildlife movements between the hillside forests and the coastal fringe.

# 5.0 CHAPTER FIVE ENFORCEABLE POLICIES

## 5.1 AUTHORIZATION FOR ENFORCEABLE POLICIES

The designation of a specific portion of the MOA coastal zone boundary (Kincaid Park, the Tony Knowles Coastal Trail, Chester Creek Trail) as Recreation Use Areas provides the MOA with the legal authority to address the prioritization of uses and activities within these areas.

## 5.2 DESIGNATION

The Recreation Use Designation has been developed in accord with the state requirements described in 11 AAC 114.250 (c) below. A designation for the purposes of coastal management does not imply that all areas within the Designation are in public ownership, or used for public recreational purposes. Rather, the Designation relates to, and encompasses actively used areas, those areas that have the potential to be used, and those areas that are setbacks or buffers needed to protect the adjacent recreational resource. A Designation is not a zoning district.

The designation is also described in Chapters One and Four and on *Maps A, B, and C*.

## 5.3 APPLICABILITY OF ENFORCEABLE POLICIES

Pursuant to the regulations for designating for recreation, the trail systems identified in Chapter 4 and in Table 4.4 lands defined as the Designated Recreation Use area, are currently used, and have the potential to be used, for recreational purposes. There are physical, biological, and cultural features upon which recreational use depends. Recreation uses in the area designated includes existing and planned features for trails, organized sports, and for passive activities such as tourism and wildlife viewing.

> ***11 AAC 114.250. Subject uses, activities, and designations.*** *(c) A district shall consider and may designate areas of* ***recreational use****. Criteria for designation of areas of recreational use are*
>
> *(1) the area receives significant use by persons engaging in recreational pursuits; or*
>
> *(2) the area has potential for recreational use because of physical, biological, or cultural features.*
>
> *(Eff. 7/1/2004, Register 170; am 10/29/2004, Register 172)*

## 5.4 PROPER AND IMPROPER USES

All land and water uses and activities are considered proper as long as they comply with the enforceable policies of the MOA CMP, ACMP standards, and applicable federal and state regulations, and municipal regulations.

A land or water use or activity will be considered improper if it is inconsistent with ACMP standards or the policies of the MOA CMP, or it does not comply with or cannot be made to comply with the applicable federal and state regulations. See Chapter Six, Implementation, for details.

## 5.5 ENFORCEABLE POLICIES

This section includes the enforceable policies (EP) that apply throughout the Designated Recreation Use area.

### 5.5.1 Policies Applicable Throughout the Designated Recreation Use Area

#### *EP-1 Uses, Activities, and Setbacks*

*The following uses area allowed and considered appropriate in the Recreation Use Area: primary and secondary structures, utilities and transportation features, direct access to streams or waterbodies or to accommodate water-dependent and/or water-related uses, habitat enhancement or restoration projects, land clearing for approved developments, impervious surfaces, clearing of native or other vegetation, removal of dead or decaying trees that threaten public or private property or health and safety. These uses are permitted provided they meet the following required conditions [and relevant Municipal regulations]:*

*(a) A 50-foot setback from the Ordinary High Water (OH) of streams and/or waterbodies, as depicted on Maps 1, 2, & 3 unless there is no practicable alternative location for the use or activity.*

*(b) For streams or waterbodies with contiguous wetlands, setback distances shall follow those defined in Table 2 of the Anchorage Wetlands Management Plan (see Appendix), which vary from 25' to 200'.*

Note: This policy flows from the State Habitat Standard 11 AAC 112.300 (a) (2, 3, 8, and 9) and the Recreation Use Designation. Specific streams and waterbodies and the Recreation Designation are depicted on Maps 1, 2, &3, referenced in the Anchorage Wetlands Management Plan Table 2., which is included as an Appendix, or available on supplemental maps or GIS coverages from the District's Watershed Management Section or Planning Department.

#### *EP-2 Buffering and Screening*

*(a) For commercial, industrial, or institutional projects and associated activities within 200-feet of streams or waterbodies within the Recreation Use Area Designation, as shown on Maps 1, 2, & 3 or in Table 2. of the Anchorage Wetlands Management Plan (see Appendix), natural or landscaped vegetative buffers (with non-invasive species) or other screening measures shall be required specifically where the project site parallels or abuts, but lies outside, the stream or waterbody setbacks cited in EP-1.*

*(b) Requirements for the size and extent of buffers or screening measures: At a minimum, these site-specific buffers or screens shall be 10' wide if composed of vegetation.*

Note: This Recreation Use Designation policy flows from the State Utility Routes and Facilities Standard 11 AAC 112.240 and the Transportation Routes and Facilities Standard 11 AAC 112.280, and applies to the Municipality's Recreation Use Area Designation. It is intended to protect the unique, location-specific biological and recreation features of the Designation within the Anchorage Coastal Boundary. Screening and buffering are effective standards that can be added to development reviews and project designs to further minimize a project's primary and cumulative impacts to wildlife, native vegetation, public uses and access. Because each site includes a unique variety of existing features and/or sire constraints, the width and type of

buffer and screening measures necessarily requires a case-by-case determination, which should occur during a consistency review, or in pre-application consultations.

### *EP-3 Waterfront Development*

*In accordance with 11 AAC 112.200:*

*(a) Water-dependent Uses and Activities within the Municipality of Anchorage include: docks; boat ramps and launches; marinas, including wet-boat storage and boathouses, haul-out facilities, permanent or transient docking spaces and dry-storage; boat fueling facilities, piers, wharfs, and mooring pilings; fish processing facilities and hatcheries; water-based tourism facilities and accessory attached housing; and transportation-related structures dependent on water access.*

*(b) Water-related Uses and Activities within the Municipality of Anchorage include: retails stores and commercial activities such as hotels, restaurants, pedestrian-oriented access, and other similar uses that provide access to and/or views of the shoreline.*

Note: This policy flows from the Coastal Development Standard 11 AAC 112.200 and the Coastal Access Standard 11 AAC 112.220. Coastal access is a longstanding goal and element of the Municipality's Coastal Management Plan and Comprehensive Plan.

### *EP-4 Coastal Access*

*(a) Development shall not interfere with existing legal public access to, or use of, the waterfront where such access or use has been established through acquisition, donation, dedication, or prescriptive easement.*

*(b) New subdivisions shall be designed to maintain or enhance public access to, from, and along coastal waters within the coastal zone where practicable.*

Note: This policy flows from the Coastal Development Standard 11 AAC 112.200 and the Coastal Access Standard 11 AAC 112.220. Coastal access is a longstanding goal and element of the Municipality's Coastal Management Plan and Comprehensive Plan.

### *EP-5 Capital Improvements*

*(a) Capital improvements on non-federal, publicly owned property shall incorporate walkways, shelters, viewing platforms, and landscaping whenever practicable to enhance public access to coastal waters.*

Note: This policy flows from the Coastal Access Standard 11 AAC 112.220. Coastal access is a longstanding goal and element of the Municipality's Coastal Management Plan and Comprehensive Plan.

# 6.0 CHAPTER SIX IMPLEMENTATION

## 6.1 INTRODUCTION

## 6.2 COASTAL MANAGEMENT PROGRAM PARTICIPANT DUTIES AND RESPONSIBILITIES

The MOA is a Unified Home Rule Municipality and is eligible to be a coastal district in accordance with state law at Alaska Statute (AS) 46.40.210(2)(B). As a home rule municipality, the MOA may exercise all legislative powers not otherwise prohibited by its Municipal Charter. According to MOA Title 21, Section 21.05.030, Comprehensive Plan, the coastal management plan is considered an element of the comprehensive plan, referenced in Title 21 at Section 21.05.030.

The Planning Department, through the CMP Coordinator implements the MOA CMP. The Planning Department has traditionally worked to integrate elements of its CMP into various sections of its Land Use Code, local permit reviews, and policies of other local planning documents. Integration of the CMP implementation measures into other local planning documents requires coordination and approval of the Planning and Zoning Commission and the Municipal Assembly. Consistency reviews are handled internally, and do not go to the Planning and Zoning Commission.

The point of contact for local consistency reviews, involving the MOA coastal zone is the Planning Director, who can be reached at:

Municipality of Anchorage
Planning Department
P.O. Box 196650
Anchorage, AK 99519
(907) 343-7921
(907) 343-7927

## 6.3 GENERAL COASTAL CONSISTENCY INFORMATION

### 6.3.1 Consistency Review Definition

According to AS 46.40.210 (5), definitions:

> *consistency review" means the evaluation of a proposed project, the scope of which is determined under AS 46.40.094 and 46.40.096, against the state standards adopted under AS 46.40.040 for those evaluations and the enforceable policies in an applicable district coastal management plan approved under AS 46.40.060.*

### 6.3.2 Subject Uses

In accordance with 11 AAC 100.010, land and water uses and activities in the coastal zone, that are subject to consistency review and enforceable policies, include the following:

- Federal activities affecting coastal uses or resources;

- Land and water uses and activities requiring federal permits or authorizations (see 11 AAC 110.400); and
- Land and water uses and activities requiring state permits or authorizations.

In addition, outside of the state consistency review process, there may be a local consistency review for land and water uses in the MOA coastal zone for land and water uses and activities requiring local permits or authorizations.

### 6.3.3 Proper and Improper Uses

In accordance with 11 AAC 114.260, the MOA CMP is required to identify uses and activities, including uses of state concern, that are considered proper and improper within the coastal zone.

The MOA has not identified any uses that are categorically prohibited within its coastal zone. Proper and improper uses are determined by their compliance with enforceable policy requirements.

All land or water uses or activities within the MOA are considered to be proper as long as they comply with the policies of MOA CMP, the ACMP standards under 11 AAC 112, and applicable municipal, state, and federal regulations. All other land or water uses or activities are considered to be improper if they are inconsistent with ACMP standards, or the policies of this CMP, or if they do not comply, or cannot be made to comply, with applicable federal and state regulations. Designated areas included in this CMP identify specific land or water uses and activities that will be allowed or not allowed.

### 6.3.4 Uses of State Concern

Uses of state concern are uses and activities that are considered to be of state or national interest. The MOA cannot restrict or exclude uses of state concern unless they provide ample justification for the exclusion or restriction within the MOA CMP.

Uses of State Concern are defined in AS 46.40.210(12). In addition, the former Coastal Policy Council issued Resolution Number 13 that specifies more categories and criteria for uses of state concern. This resolution remains in effect until statutes or regulations replace it, or until it is formally rescinded by ADNR.

## 6.4 COASTAL CONSISTENCY REVIEW PROCESS

Because the State of Alaska has adopted the MOA CMP as an amendment to the ACMP, the MOA is one of several reviewers that concurs or objects to an applicant's consistency certification, or a federal agency's consistency determination to the coordinating agency during consistency review. Based on these comments, and on the policies and procedures of the ACMP, the coordinating agency issues a consistency finding.

### 6.4.1 How to Use the CZM Plan Maps and Model

The MOA has designated Kincaid Park, the Tony Knowles Coastal Trail, and the Chester Creek Trail as Recreation Use Areas. There are resources within the designation that have important physical, biological, and cultural attributes upon which existing recreation uses and potential recreation uses depend.

Maps A, B, and C describe the coastal zone boundary and the designated area.

The MOA will upload the sensitivity map information to its interactive map applications website so that individuals can determine if their project falls within, or touches, the plan designation. Hard copies of the maps will be available at the Planning Department Public Counter. Ideally, the public will have the capability to use the MOA map application website to highlight a project site boundary on a parcel-level basis and compare that parcel on any scale to the coastal zone boundary and designation boundary. If a project site is within or touches the designation, then the project is subject to the plans enforceable policies.

### 6.4.2 Two Types of Consistency Reviews

The enforceable components of this CMP form the basis for a determination of consistency with the MOA CMP. There are two types of reviews: (1) state-coordinated consistency reviews, and (2) locally coordinated consistency reviews. When a project is proposed, State ACMP project reviewers determine which authorizations are needed. If the project is a federal activity, or needs state or federal authorization, the State of Alaska reviews the project for consistency with the ACMP. The MOA also participates in the state-coordinated review. If only local authorization is required (but not state or federal authorization), then the MOA itself reviews the project for consistency with the ACMP.

### 6.4.3 Determination of Consistency in Connection with Other Permits and Approvals

In addition to consistency, an applicant is required to obtain all other necessary permits and approvals required in connection with a proposed project. A determination of consistency does not guarantee, or presume, approval of any other federal, state, or local permit.

### 6.4.4 ADEC Jurisdiction

In accordance with AS 46.40.040(b), a district may not address a matter regulated by the Alaska Department of Environmental Conservation (ADEC) under AS 46.03, AS 46.04, and AS 46.14 and the regulations adopted under those statutes. ADEC air, land, and water quality standards are the exclusive standards of the ACMP for those purposes. Issuance of ADEC permits, certification, approvals, and authorizations establishes consistency with the ACMP program for those activities of a proposed project subject to those permits, certifications, approvals, or authorizations. A project that includes an activity subject to an ADEC authorization on the C List (see ABC List next) may require a coordinated review if the project includes a different activity that is not subject to an ADEC authorization, but is the subject of an enforceable policy or another C-listed authorization. However, the specific activities subject to ADEC authorization are not within the scope of those project activities to be reviewed.

In the case of an ADEC single agency review, the scope of review is limited to an activity that is the subject of an enforceable policy. ADEC Policy Guidance No. 2003-001, January 7, 2004, contains the actual procedure by which ADEC will participate and coordinate in ACMP consistency reviews. This document is titled, “DEC Single Agency Coastal Management Consistency Review Procedures,” and sets forth the Uniform Procedures for Conducting a Coastal Management Consistency Review for Projects that Only Require a [ADEC] Permit or Contingency Plan Approval to Operate.

### 6.4.5 “ABC” List

The ABC List is a classification system of state and federal approvals that can streamline the consistency review portion of the state permitting process for a proposed project. The intent of the ABC List (specifically the "A" and "B" portions of the list) is to reduce the amount of time reviewers

must spend on reviewing routine individual projects. The ABC List allows them to concentrate on those projects requiring a more involved consistency review.

The ABC List actually breaks down into three lists:

- The "A" List represents categorically consistent determinations – approvals of activities requiring a resource agency authorization, when such activities have been determined to have minimal impact on coastal uses or resources;
- The "B" List has been broken into two sections: Section I of the "B" List represents generally consistent determinations – approvals for routine activities that require resource agency authorization(s), when such activities can be made consistent with the ACMP through the application of standard measures; and Section II of the "B" List includes nationwide permits and general permits that have been found to be consistent with the ACMP.
- The "C" List represents a comprehensive listing of those state permits that may trigger consistency review.

Projects do not always fit neatly into just one of the three lists ("A," "B," or "C"). Some projects need authorizations that fall under more than one list or include activities that are not found in the "B" List. For these projects, OPMP will determine how much review the project requires.

## 6.5 FEDERAL AUTHORITY AND CONSISTENCY DETERMINATION

In accordance with federal law, the MOA coastal zone excludes all federal lands and waters within its boundaries. Federal lands and waters are those lands and waters managed, owned, or held in trust by the federal government.

Federal law requires "federal agencies, whenever legally permissible, to consider State management programs as supplemental requirements to be adhered to in addition to existing agency mandates" per Code of Federal Regulations (CFR), 15 CFR 930.32(a). Federally licensed or permitted activities proposed within the coastal area and affecting coastal uses or resources must be **consistent** with the ACMP, including the MOA CMP (15 CFR 930.50). Federal license and permit activities described in detail in Outer Continental Shelf plans and affecting coastal uses or resources must be **consistent** with the ACMP, including the MOA CMP (15 CFR 930.70).

All **federally conducted or supported activities**, including **development projects** directly affecting the coastal zone, must be **consistent to the maximum extent practicable** with the ACMP, including the MOA CMP. Federal activities are "any functions performed by, or on behalf of, a federal agency in the exercise of its statutory responsibilities." This does not include the issuance of a federal license or permit. Federal development projects are those federal activities "involving the construction, modification, or removal of public works, facilities, or other structures, and the acquisition, utilization, or disposal of land or water resources" per 15 CFR 931.31. The phrase "consistent to the maximum extent practicable" means that such activities and projects must be "fully consistent with such programs unless compliance is prohibited based upon the requirements of existing law applicable to the federal agency's operations" per 15 CFR 930.32(a).

## 6.6 MOA PARTICIPATION IN STATE-COORDINATED CONSISTENCY REVIEW

### 6.6.1 Procedures

The point of contact for state and federal consistency reviews involving the MOA CMP is OPMP. OPMP addresses are:

Southcentral Regional Office
550 West 7th Avenue, Suite 705
Anchorage, Alaska 99501-3559
Phone: (907) 269-7470
Fax: (907) 269-3981

Central Office
P. O. Box 111030
Juneau, Alaska 99811-1030
Phone: (907) 465-3562
Fax: (907) 465-3075

The state-coordinated consistency review process is contained in state regulations at 11 AAC 110. The MOA seeks to work with applicants to initiate early communication and facilitate an expedient and informed consistency review.

### 6.6.2 Permit Pre-Application Meeting

During a consistency review, the CMP Coordinator may contact the coordinating agency to request a meeting to resolve issues. The purpose of the meeting is to discuss the coastal management and permitting issues of the proposed activity, and to work toward resolution of issues of local concern and potential conflicts. Scheduling a permit pre-application meeting does not change the final consistency review deadline of 90 days as directed in 11 AAC 100.265.

### 6.6.3 Consistency Comments

During the period allowed to review and consider the proposed use, the MOA will prepare written comments on the applicant's consistency certification. In preparing a consistency review comment, the MOA will comment on consistency with state standards. In order to be considered by the coordinating agency, MOA comments must be in writing and must:

(1) State that the MOA concurs with the applicant's consistency certification and explain why, or

(2) Identify that the MOA objects to the applicant's consistency certification.

If the MOA objects, then it must:

(1) Identify and explain why the proposed project is inconsistent with specific state standards or the MOA CMP enforceable policies; and

(2) Identify any alternative measure that, if adopted by the applicant, would achieve consistency with the specific state standard or MOA CMP enforceable policy.

Alternative measures are project conditions proposed by a state resource agency or the MOA that, if adopted by the applicant, would make the project consistent with either state standards or MOA CMP enforceable policies. If alternative measures are proposed, the MOA must explain how the alternative measure would achieve consistency with the specific enforceable policies in question.

When the consistency review is routine in nature and the Planning and Zoning Commission does not need to take action, the CMP Coordinator will issue the consistency comments on behalf of the MOA.

### 6.6.4 Public Hearing During a State-Coordinated Consistency Review

Any person or affected party may request that the coordinating agency hold a public hearing on a project or activity undergoing a consistency determination, by providing adequate justification for the request as specified in 11 AAC 110. During the initial consistency review, the CMP Coordinator, in consultation with the Planning Director and affected parties, may decide if the scope of a project will require a public hearing. If a public hearing is needed, the CMP Coordinator will submit a written request to the coordinating agency that a public hearing be held and outline the need for such a hearing. The coordinating agency will review the request to determine if it is based on concerns not already adequately addressed in the review. If a public hearing is held, the 90-day deadline in 11 AAC 110.265 for the completing the consistency review is unchanged. The coordinating agency should be consulted for the exact schedule.

### 6.6.5 Changes in the Nature of a Permitted or Approved Activity

Per 11 AAC 110.280, an applicant that proposes a modification to an activity, for which a final consistency has been issued, must submit a new coastal project questionnaire to the agency that coordinated the consistency review. The modification is subject to another consistency review if the modification will have significantly different effects than the existing use on the resources of the MOA coastal zone, and if a new authorization or change in authorization is required.

### 6.6.6 Due Deference

Due deference is a concept and practice within the consistency review process that affords the commenting review participants the opportunity to include, review, or refine the alternative measures or consistency concurrence if they have expertise in the resource, or the responsibility for managing the resource. The MOA and resource agencies are provided deference in interpretation of policies and standards in their area of expertise or area of responsibility. First, in order to be afforded due deference, the MOA must have an approved coastal management plan and have commented during the consistency review. Then, the MOA may be afforded due deference if no resource agency has specific authority or expertise, and if the MOA can demonstrate expertise in the field.

A district does not have to have a specific policy that applies to the proposed project under review. The MOA may comment on the consistency of the proposed project within the state standards.

If the coordinating agency rejects the MOA comments, or any alternative measures that the MOA might seek to have imposed on the application in connection with a consistency determination, the coordinating agency must provide a brief, written explanation stating the reasons for rejecting or modifying the alternative measure. *Note: this requirement only applies when the coordinating agency disagrees with the MOA on issues involving the interpretation and application of the MOA CMP*.

AS 46.40.090(b) requires coastal districts that have and exercise zoning or other land use controls to implement their plans. While there is no specific guidance in statute or regulations on how to implement the district plan, the preferred method is through the performance of local consistency review.

### 6.6.7 Uses Subject to Local Consistency Review

All uses that are proposed in the MOA coastal zone that do not require federal or state authorization, or that are not a federal activity, will require a determination of consistency from the MOA if they are land and water uses requiring a permit or approval in accordance with MOA Code, Title 21. When a

project does not require a state or federal permit or authorization, and only requires local approval, the MOA will determine how the policies will be applied to the proposed project.

### 6.6.8 Application Procedure and Time Line

There is no separate application for a local consistency determination under the MOA CMP. Rather, the applicant desiring to undertake a subject use applies to the MOA (depending on where the use is to be located) for the required land-use permit or approval. Platting and zoning actions also undergo internal consistency reviews during their respective public process.

### 6.6.9 Local Consistency Determinations Inside the MOA

The point of contact for local consistency reviews is the MOA CMP Coordinator, a staff position in the MOA Department of Planning. The address of the CMP Coordinator is:

Municipality of Anchorage
Planning Department
P.O. Box 196650
Anchorage, AK 99519
(907) 343-7921 (phone)
(907) 343-7927 (fax)

The MOA Title 21 Regulations and land development ordinances detail the review process and schedule for each specific local permit or approval required. The MOA will conduct its consistency review concurrently with its permit or approval review process. Final permits will include conditions or changes as necessary for consistency with the MOA CMP.

Subject uses within the MOA that do not require a state or federal authorization, or that are not a federal activity, will have a local consistency determination made by the MOA. Rezoning, conditional uses, variances, and new subdivisions, are actions that require local consistency determinations by the MOA.

MOA zoning and subdivision ordinances are not part of the MOA CMP and are not subject to state review and approval. Therefore, amendments to the local zoning and subdivision ordinances will not require an amendment to the approved CMP. However, the local zoning and subdivision ordinances may not conflict with the MOA CMP. The Planning Department typically reviews changes to Title 21 and related zoning and platting ordinances for consistency with its CMP.

## 6.7 Elevation Process and Appeals

### 6.7.1 Elevation of State Consistency Determination

Elevations of a consistency determination issued by a coordinating agency follow the procedures established under regulations at 11 AAC 110.600.

## 6.8 Amendments

AS 11 AAC 365(b) requires that the MOA review and submit their plan to ADNR every 10 years for re-approval. The MOA may specify a shorter time frame to review its plan.

Every five years, the CMP Coordinator should initiate a local review of the approved coastal program. This formal review gives residents, developers, affected communities, and local landowners an opportunity to become familiar with the plan and its policies and to propose amendments. Changes can keep the CMP up-to-date and relevant. Some adjustments may be made to the MOA coastal zone boundaries or land-use districts based on new information. Policies may be further refined and standards adopted to facilitate the consistency review process. More detailed plans developed for special areas, such as AMSA plans, may be incorporated into the MOA CMP after state and federal approval.

In addition, after completing any regional planning efforts, the Planning and Zoning Commission may evaluate amending the MOA CMP to include pertinent policies, classifications, and resource data developed through the specific planning process. The MOA Assembly must approve all amendments to the MOA CMP. The Commissioner of ADNR and the federal Office of Ocean and Coastal Resource Management must also approve any amendment to the MOA CMP. The process for amending the MOA CMP is provided in regulations at 11 AAC 114.

Two processes are available to the MOA for amending its CMP. The minor amendment process quickly incorporates minor changes. The significant amendment process provides a more thorough review for important changes. Examples of changes that are a significant amendment to the MOA CMP are:

- New policies or changes to existing policies,
- Alteration to the coastal zone boundaries,
- AMSA or ACMP special management areas, and
- Restrictions or exclusions of a use of state concern not previously restricted or excluded.

## 6.9 MONITORING AND ENFORCEMENT

State resource agencies and municipalities attain their enforcement responsibility from AS 46.40.100. If an applicant fails to implement an adopted alternative measure, or if the applicant undertakes a project modification not incorporated into the final determination, and not reviewed under 11 AAC 110.800-820, it is a violation of the ACMP. The responsibility for enforcing alternative measures carried on state and federal permits rests with the permitting agency. The MOA strongly encourages the State to enforce alternative measures and bring violators into compliance.

Enforceable policies and ACMP standards are implemented at the state level through alternative measures incorporated into the project description. The ACMP does not issue a separate coastal permit, but relies on existing state authorities. Thus, state monitoring and enforcement of the ACMP occurs primarily through agency monitoring and enforcement of alternative measures on their permits. A district can assist in this process by monitoring projects and providing information to appropriate state agencies.

The CMP Coordinator and the Planning Department have first-hand knowledge of local concerns and issues related to development activities in the MOA coastal zone. The CMP Coordinator and the Planning Department may, within legal and logistical constraints, assist agencies and municipalities in their monitoring and compliance efforts. The intent is to ensure that alternative measures associated with the MOA CMP are carried out in the development process.

The CMP Coordinator will work with state and federal agencies in monitoring and enforcement, and provide responsible agencies with copies of local reports on noncompliance. This will include adherence to permit conditions, cooperative plans, and the policies of the CMP.

When a MOA permit or approval is required, the permit will include all conditions placed on the subject use during the consistency determination. The MOA shall do the same for subject uses, requiring a permit or approval from the MOA. In such instances, the permitting state and/or federal agency will share concurrent jurisdiction with the MOA, and either or both may seek to enforce the conditions placed on the subject use.